THE CHILDREN'S HOSPITAL OF BOSTON

1869-1951

THE CHILDREN'S MEDICAL CENTER

1946-1951

THE CHILDREN'S HOSPITAL

1869-1951

EIGHTY-TWO YEARS OF SERVICE TO THE COMMUNITY AND TO THE NATION

THE CHILDREN'S MEDICAL CENTER

1946-1951

The Children's Medical Center

The Children's Hospital
Infants' Hospital
House of the Good Samaritan
The Hospital and Convalescent Home
The Sharon Sanatorium
The Children's Mission to Children

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Foreword

IN the following pages we have tried to set forth as complete a statement of the history, development and purposes of THE CHILDREN'S HOSPITAL and THE CHILDREN'S MEDICAL CENTER as is possible within comparatively limited space.

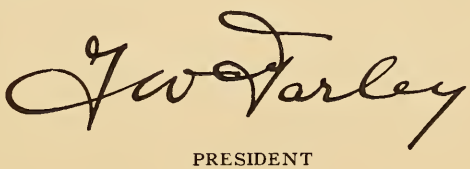
At the end of the war it became apparent that the resources of THE CHILDREN'S HOSPITAL had potentialities far beyond those that could be achieved were the staff to be confined too narrowly by the limits of traditional hospital work.

On becoming President of THE CHILDREN'S HOSPITAL, I visited many hospitals for children in other parts of the country and talked with men working for the expansion of pediatric research. Thereafter, following discussions and conferences with members of our own Hospital staff, the general plan for THE CHILDREN'S MEDICAL CENTER was formulated.

Since early in 1946 we have made every effort to perfect and carry out this plan. Many difficulties and delays have been faced, but we believe that material progress has been made both in completing the details of the plan and in carrying out a number of the preliminary steps necessary for its full realization.

The present book has been prepared with the purpose of stating the plan more fully, telling of the advances already made, and as far as practicable, plotting the course for the future.

We hope that the reader will get from these pages an idea of what has been done, and of what we hope to do.



PRESIDENT

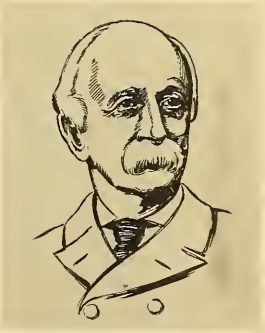
PART ONE

For what is the present after all
but a growth out of the past?

WALT WHITMAN

CHAPTER I

THE EVOLUTION OF AN IDEA



DR. FRANCIS BROWN

EVERY community is concerned with child health, for in its children rests the future of the community itself. Eighty-two years ago, when Dr. Francis Brown returned from Europe, fired with the idea of founding a hospital for children in Boston, he had in mind service to his community. It was still a revolutionary concept, this idea that children's diseases provided a separate area of medical study and treatment, and it took an enthusiastic, creative mind to visualize its potentialities. Crystallized, Dr. Brown's plan became THE CHILDREN'S HOSPITAL of Boston, the nucleus of today's MEDICAL CENTER FOR CHILDREN.

In Dr. Brown's day a man's community was his home town. Everything about his town and its people was important. He took pride in its progress and actively endeavored to contribute to its advancement. Then as now, community health was of major concern, but despite advanced thinking on public health, Boston was no different from other American cities when it came to its children. To establish a hospital devoted entirely to treatment of children's diseases seemed to the medically-minded Bostonian an illogical encroachment on the field of the general hospital.

Bostonians were soon to discover that Dr. Brown was not a man easily dissuaded. Carefully he explained his plan to a few close and trusted friends. Convinced of its merit, they set about to help him establish his hospital. Since that time the growth of THE CHILDREN'S HOSPITAL has paralleled the progress of pediatrics in America. As the Hospital has grown, as research into the causes and cures of children's diseases has developed, the community has broadened too. Today we are concerned with child health on more than a local basis. The problem has spread beyond state boundaries to assume national significance.

THE CHILDREN'S HOSPITAL *of Boston, now the nucleus of The Children's Medical Center.*

Approximately one third of our population is composed of children, and of this number it is believed that about a third is either mentally or physically handicapped. This lends to the problem of adequate medical service a sense of urgency. It is true that there are excellent community hospitals throughout the United States. There are community clinics, government and private charitable agencies of all types which endeavor to cope with the problem of child health. For many years such organizations attempted to provide the necessary care for children in the Boston area.

But somewhere there was needed a place which would serve as a center for research into children's diseases, where new methods of therapy might be initiated, a place from which information on new discoveries might be disseminated. There was need for a medical storehouse of pediatric data, a medical clearing house for therapeutic information.

The Nucleus of a Medical Center

That THE CHILDREN'S HOSPITAL in Boston should serve as the nucleus of such a medical center for children was the result of a natural evolution. From its inception THE CHILDREN'S HOSPITAL had pioneered in most fields of pediatric research and treatment. Men and women trained in its laboratories and wards had spread throughout the United States and abroad carrying with them a fundamental truth . . . a sick child is entitled to total care and should be studied in relation to his entire physical and emotional make-up. As the medical world began to realize the dangers of too narrow specialization, the principle of diagnostic and therapeutic integration had already begun to emerge at THE CHILDREN'S HOSPITAL. THE MEDICAL CENTER would be the practical application of this principle.

National and International Service

Whether or not THE CHILDREN'S HOSPITAL, and its close affiliate INFANTS' HOSPITAL, were qualified to meet the demands of national and international service was not seriously questioned. As early as 1889 the Hospital had widened its horizons beyond the radius of Boston's State House. *"During the past year,"* said the twentieth annual report, *"patients have come to us from . . . Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Illinois, Kansas, Minnesota, Colorado, Dakota, California, New Brunswick, Nova Scotia, and Aberdeen in Scotland."* And only a few years later THE CHILDREN'S HOSPITAL could report *"physicians come from afar to take courses in medical and surgical practice in our wards . . ."*

Just prior to the announcement in 1946 that THE CHILDREN'S HOSPITAL would be the nucleus of a new medical center for children, statistics were available which demonstrated the national and international scope of the Hospital's service during the previous fifteen years. Doctors who had

received their pediatric training at CHILDREN'S during this period were practicing in 38 states, nurses in 37. Doctors from 23 foreign countries had come to study in the Department of Medicine. Physical therapists trained at CHILDREN'S were practicing in every state. In 1945 alone patients from 590 communities in the United States, including 337 communities outside of Massachusetts, were treated at the hospital.

In approving the plan for the development of the MEDICAL CENTER, the Trustees of the Hospital could, moreover, look back to the striking growth of the Hospital facilities in the preceding fifteen years. There had been a remarkable increase in the number of persons devoting their full energies to THE CHILDREN'S HOSPITAL. Each major division had a full-time chief or a full-time man delegated by the chief to assist him in carrying out his responsibilities. Laboratory departments had been expanded to serve all clinical divisions of the Hospital. Diseases of children were no longer taught from the point of view of three separate clinical divisions, medicine, surgery, and orthopedic surgery, but rather from the viewpoint of the child as a whole. This united front of all services was resulting in the development of techniques and types of knowledge of a variety and magnitude not established anywhere else in pediatrics. Important also was the fact that THE CHILDREN'S HOSPITAL served as the principal teaching unit in pediatrics for the Harvard Medical School. This close relationship was a guarantee of the quality of the teaching, research and therapeutic effort of the staff.

Proposed Units of the Center

To carry forward the plan, those responsible looked beyond the walls of the Hospital to develop the kind of medical center needed. Nearby there were several other institutions devoted to the care of children. The HOUSE OF THE GOOD SAMARITAN cared for rheumatic fever patients as did THE SHARON SANATORIUM. THE CHILDREN'S MISSION TO CHILDREN with its experience in social service work and in providing foster homes for convalescent children was a natural affiliate. INFANT'S HOSPITAL and the WELLESLEY HOSPITAL AND HOME FOR CONVALESCENT CHILDREN were already closely associated with THE CHILDREN'S HOSPITAL. Cooperating as one center, these various organizations would supplement the work being done at CHILDREN'S and add to the diversification of its services.

By 1946 the idea of a children's medical center had crystallized.

CHAPTER II

HISTORY AND ACCOMPLISHMENTS

THE LARGE WARD, *early Children's Hospital.*

THE story of the growth of THE CHILDREN'S HOSPITAL is not revealed in the number of buildings it has acquired nor in the amount of funds it has accumulated. The true measure of its progress is seen in the diary of its medical and surgical accomplishments.

In 1869 Harvard University had one of the great medical schools in America, but it was not until 1888 that the University created the first chair and professorship in pediatrics in the United States. Dr. Thomas Rotch was appointed the first professor of pediatrics, and since that time each appointee to the professorship bearing his name has served as Physician-in-Chief of THE CHILDREN'S HOSPITAL. In 1889 the CHILDREN'S HOSPITAL established a school of nursing. In 1903 THE HOSPITAL became the pediatric teaching center of Harvard Medical School.

This recognition of pediatrics as a separate and important branch of medicine was a clear indication of the growth of fundamental knowledge in the field. When THE CHILDREN'S HOSPITAL first opened in 1869, it was little more than a nursery for sick children. In those days, if a child was considered ill enough to be brought to a hospital, his condition was too often hopeless. According to one of the early reports: *"Hip disease, caries of the spine, deformities of infantile paralysis . . . bow legs, knock-knee and other forms of rickets . . . clubfoot, wry neck and congenital dislocation of the hip were either regarded as incurable or only treated with such difficulty as to be beyond the means of any but the extremely wealthy."* The staff of THE CHILDREN'S HOSPITAL made a purposeful attack on these ills. By 1902, under the leadership of men like Dr. Edward Hickling Bradford, Chief of the Orthopedic Service since 1878, they could report encouraging signs of success. Dr. Bradford, one of the first surgeons in the United States to limit his practice to the treatment of disabilities of bone and joint, became the first full Professor of Orthopedic Surgery in the Harvard Medical School.

Early Medical Progress

THE CHILDREN'S HOSPITAL met its first major challenge in the Nineties when children were dying in appalling numbers from diphtheria. Little was known about prevention but even then the principle of a united attack on disease was seen in the approach of the staff to this problem. In the study of diphtheria the Hospital staff rapidly adopted and developed the latest therapy which science had evolved. The permanent position of bacteriologist was created, and immunization was soon introduced. As a result, THE CHILDREN'S HOSPITAL was first in the Boston area to employ antitoxin as a prophylactic to be administered as a matter of regular routine to all children entering the Hospital.

The Department of Orthopedic Surgery progressed side by side with the Department of Medicine. Congenital dislocation of the hip—the first case ever admitted to THE CHILDREN'S HOSPITAL—was now being treated surgically with remarkable success. Progress in X-ray had contributed substantially to the diagnosis of the extent of the deformities to be treated. Here was the genesis of the outstanding orthopedic work for which THE CHILDREN'S MEDICAL CENTER is now famous throughout the world.

During this same period, while the staff was making strides in the areas of infectious diseases and orthopedics, research had also begun in neurological disturbances. Invaluable pioneer work was initiated in cerebral palsy. Prior to this time the diagnosis of cerebral palsy was particularly difficult for physicians due to the dearth of knowledge concerning the condition. Progress was also made in epilepsy. Here was the origin of the neurological work which would later be developed by members of THE CHILDREN'S HOSPITAL staff.

1910 saw the establishment of the first clinic for infant feeding. In the years which followed, INFANTS' HOSPITAL, in close affiliation with THE CHILDREN'S HOSPITAL, was able to reduce substantially the high mortality rate of premature infants. Treatment of nutritional deficiencies was gener-

Infants' Hospital has earned a wide reputation in the care of premature infants. Local hospitals, and frequently those beyond the Boston area, send premature cases when complications arise requiring specialized care. Left: a nurse weighing a tiny infant in one of INFANTS' HOSPITAL'S ISOLETTES.

ally developed to the point where, by the 1940's, rickets were virtually unknown among THE CHILDREN'S HOSPITAL patients. As early as 1923 pathologic studies resulted in the first recognition of Vitamin A deficiency in infants and children. 1910 was also the year in which a Social Service Department was established at THE CHILDREN'S HOSPITAL, one of the first in the United States. Here was further evidence of the principle that treatment of a sick child should extend beyond hospital walls into the life of the child and his environment.

First Infantile Paralysis Clinic

From the beginning THE CHILDREN'S HOSPITAL had been concerned with infantile paralysis. As early as 1906 staff members could report: *"In the treatment of Infantile Paralysis by tendon transplantation, further progress has been made in the development of operative technique, especially in the use of artificial silk tendons, and the results of operation in this group of cases have been more satisfactory than ever before."* CHILDREN'S was to be put to the test in its infantile paralysis work in 1916. That year saw the worst polio epidemic in the history of the United States. More than 25,000 children in the East were crippled by the disease. Under the urging of Dr. Robert Lovett, Orthopedic Surgeon-in-Chief, the Harvard Infantile Paralysis Commission was created with the central clinic at THE CHILDREN'S HOSPITAL. It was one of the first great infantile paralysis clinics in the world, and today it remains as one of the first in the field for the care of problems occasioned by this disease.

Boston had long since ceased to be the boundary of operation for THE CHILDREN'S HOSPITAL. During the 1916 polio epidemic the director of physical therapeutics was loaned for three months to New York City hospitals to teach pioneer techniques used at CHILDREN'S for re-educating muscles paralyzed by polio. New York State health authorities sent nurses to the Hospital to study therapeutic methods.

Since that time, THE CHILDREN'S HOSPITAL has been called upon for service in all the major polio epidemics in the United States.

The polio epidemic of 1916 also presented THE CHILDREN'S HOSPITAL with its first opportunity to do teaching on a wide scale. In 1918 Harvard Medical School was conducting under Federal orders a program of instruction in military orthopedics in which THE CHILDREN'S HOSPITAL played the key part. More than 200 surgeons coming from forty states and some seventy medical schools took part in the program, and the fame of THE CHILDREN'S HOSPITAL'S contribution to the field of orthopedics spread throughout the United States. At the close of the program THE CHILDREN'S HOSPITAL reported: *"It emphasizes as nothing before has done that to be thoroughly effective the modern hospital must be a teaching hospital and that the more teaching . . . the better becomes the treatment of the individual patient."*

First Children's Cardiac Clinic

In 1915 the first cardiac clinic for children was opened at THE CHILDREN'S HOSPITAL. The amazing achievements accomplished since then in cardiovascular work were far beyond the horizon of the small cardiac clinic of those early years. Heart operations have been performed in the past twelve years which have stimulated the medical world. An operation on the heart was perfected consisting of cutting out a constricted section of the aorta and sewing the severed ends together so that the flow of blood would be unimpeded. In 1945 an operation was successfully performed for the first time by a CHILDREN'S HOSPITAL surgeon relieving the pressure of an abnormal ring of blood vessels in the throat which interfered with breathing. The debilitating disease of rheumatic fever has been constantly under study particularly at the HOUSE OF THE GOOD SAMARITAN, which has devoted its efforts to rheumatic fever patients for many years.

Reduction in High Mortality Rates

The staff of THE CHILDREN'S HOSPITAL went about the task of reducing the mortality rate in children dying from appendicitis and abnormalities in the intestinal tract. Pioneer work in nutrition resulted in the successful treatment of dehydrated children by restoring the body fluid balance and the electrolyte equilibrium. Through the years surgeons at CHILDREN'S had been expending an increasing amount of effort on congenital anomalies resulting in neurological disturbances. In 1929 the Department of Neurosurgery was established, a significant sign of the intensive investigation going on in the area of injuries to the brain and nervous system which previous to that time had been considered hopeless. THE CHILDREN'S HOSPITAL neurosurgeons made great advances in the problems of subdural hematoma in infancy and hydrocephalus in connection with spina bifida. Where little

Fine plastic surgery is done particularly on children with harelips and cleft palates. Following surgery, the child with a cleft palate usually requires special dental work and speech therapy. Right: the SPEECH THERAPIST *forms sounds with her lips while the child imitates the reflection.*

knowledge was available previously, the Department of Neurosurgery proved that some congenital malformations as well as injuries and infections affecting the brain and spinal cord are amenable to treatment. And even as the Department of Neurosurgery grew, the need for constant consultation between the members of that department and the neurologists and other members of the Department of Medicine was seen. The foundation of a Neurological Institute at the MEDICAL CENTER FOR CHILDREN was being laid.

The Department of Surgery developed another area of activity which was to attract world-wide attention. Plastic surgery, which in so many cases has brought about striking improvements in the appearance of disfigured children, was gradually developed. From all over the United States children came with harelips, cleft palates to be put under the care of THE CHILDREN'S HOSPITAL surgeons.

Cancer Research for Children

Another significant development was the establishment of the world's first CHILDREN'S CANCER RESEARCH FOUNDATION in 1948. Several years prior to this, investigators had inaugurated a program under the auspices of the National Cancer Institute to study tumors of infants, children, and adolescents. The pathology, life history and biologic behaviour of tumors in early life were studied, and experiments were conducted on the action of chemical agents on incurable cancer and the therapeutic value of X-ray.

By 1947 THE CHILDREN'S HOSPITAL could announce that, for the first time in medical history, the course of acute leukemia in a patient had been arrested temporarily, resulting in a prolongation of life in some cases as long as twenty-two months. This development was the result of discoveries of the effects of chemical compounds related to folic acid on cancer in a research program conducted in collaboration with scientists of the American Cyanamid Company. While THE CHILDREN'S HOSPITAL laboratories were engaged in research on cancer, the staff also was offering a free consultation service with therapeutic advice to any doctor anywhere in the world who would send in histories, X-ray films, and microscopic slides—another evidence of the expansion of service of THE CHILDREN'S HOSPITAL far beyond the boundaries of the community in which it was located.

In its medical achievements, THE CHILDREN'S HOSPITAL had laid the foundation for a medical center for children. It was now time to begin its organization.

CHAPTER III

THE IDEA TAKES SHAPE

J. W. Farley

WORLD War II made heavy demands upon the staff of THE CHILDREN'S HOSPITAL as it did on every major hospital in the United States. One hundred and eighty-one doctors and nurses were called into service. Those who remained served the nation in numerous civilian capacities. It was a time of emergency for the country as a whole, a period of great change for the Hospital itself. Even had the plan for THE CHILDREN'S MEDICAL CENTER been blueprinted, the war years would not have been the time for immediate implementation.

With a view to the further development of the Hospital, some new officers were elected as the war drew to an end, and the Board of Trustees was considerably increased in number. Early in 1946 the general plan for THE CHILDREN'S MEDICAL CENTER was drafted by the president, approved by the Trustees, and announced to the public.

In the following year, while the staff was returning to its prewar strength, new chiefs of service were appointed to succeed those who had reached the retirement age. Dr. Charles A. Janeway succeeded Dr. Richard M. Smith, then Acting Chief of the Medical Service. Dr. Robert E. Gross succeeded Dr. William E. Ladd as Chief of Surgery. Dr. William T. Green followed Dr. Frank Ober as Chief of the Orthopedic Service. Dr. Edward B. D. Neuhauser was appointed to head the Radiological Service. Dr. Franc D. Ingraham became Chief of the Neurosurgical Service, and Dr. Sidney Farber, Pathologist-in-Chief, was named head of the newly established Division of Laboratories and Research.

Aerial view of THE CHILDREN'S MEDICAL CENTER. *A. The main building of The Children's Hospital; B. Infants' Hospital; C. Building C including the Sharon Cardiovascular Unit; D. Bader Building; E. Carnegie (Laboratories) Building; F. House of the Good Samaritan; G. Children's Cancer Research Foundation; H. The Children's Mission to Children; I. Gardner House (nurses' residence). Nearby are shown: J. The Harvard Medical School; K. Harvard School of Public Health. Not shown: The Wellesley Unit.*

GUY W. BRUGLER, M.D.
Administrator

SIDNEY FARBER, M.D.
Pathologist-in-Chief

WILLIAM T. GREEN, M.D.
Orthopedic Surgeon-in-Chief

ROBERT E. GROSS, M.D.
Surgeon-in-Chief

New Laboratory Facilities

The establishment of the Division of Laboratories and Research was the result of a careful analysis of the needs of THE CHILDREN'S HOSPITAL and its affiliates. By this step all of the routine laboratory work of clinical importance, with the exception of biopsies and autopsies, was brought together into one department. This relieved the research laboratories in the Department of Pediatrics of all the routine bacteriology, clinical pathology, and biochemistry which, because of the increasingly heavy load of work, had become burdensome to the Department. The facilities of the newly created Clinical Laboratories were at the disposition of all clinical branches of the hospital resulting in increased efficiency and greater economy in the entire hospital operation. And as the MEDICAL CENTER increased in personnel, facilities, and service, the responsibilities of the Division of Laboratories and Research would also be augmented.

Affiliation with the House of the Good Samaritan

There were several institutions in or near Boston which could, by closer affiliation, increase their services to the public as effective elements in THE CHILDREN'S MEDICAL CENTER. In 1922 the INFANT'S HOSPITAL had become practically an integral part of THE CHILDREN'S HOSPITAL. From the earliest days the CONVALESCENT HOME FOR CHILDREN at Wellesley, originally established by the Women's Committee of THE CHILDREN'S HOSPITAL in 1874, worked closely with THE CHILDREN'S HOSPITAL in providing for convalescent patients. To all intents and purposes, these two institutions were already working units of the MEDICAL CENTER, but formal agreements were made to clarify the relationship.

THE HOUSE OF THE GOOD SAMARITAN is a close neighbor of THE CHILDREN'S HOSPITAL. Established in 1860 by Miss Anne S. Robbins, the

Franc D. Ingraham, m.d.
Neurosurgeon-in-Chief

Charles A. Janeway, m.d.
Physician-in-Chief

Edward B. D. Neuhauser, m.d.
Radiologist-in-Chief

S. Burt Wolbach, m.d.
Chief, Division of Nutrition

HOUSE OF THE GOOD SAMARITAN first admitted tubercular children. Later, in 1863, SAMARITAN opened the first orthopedic ward in the country until rickets, the disease which afflicted most of its young patients, had virtually disappeared and other hospitals, such as CHILDREN'S, provided adequate clinics for care of orthopedic patients. Always concerned with the chronically ill, the SAMARITAN devoted its services principally to patients with rheumatic fever. By 1946 it was devoting its efforts exclusively to the research and therapy of rheumatic heart disease.

It was recognized that combining the efforts of THE CHILDREN'S HOSPITAL and the HOUSE OF THE GOOD SAMARITAN in the field of cardiovascular research and treatment would be of mutual benefit to both institutions. On December 9, 1946 an agreement was signed between the two neighboring hospitals, and another important unit of those cooperating in the MEDICAL CENTER was added.

The Sharon Sanatorium Joins the Center

On the same day a similar agreement was signed between THE CHILDREN'S HOSPITAL and THE SHARON SANATORIUM arranging for the coordination of work in connection with the treatment of children's diseases. For many years THE SHARON SANATORIUM had been a pioneer in the open-air treatment of rheumatic fever in children. It was one of the first institutions to make such care available near the city where formerly it had been given chiefly in mountain regions. It was now decided that the important work of SHARON should be carried on within the physical plants of THE CHILDREN'S HOSPITAL and the HOUSE OF THE GOOD SAMARITAN. When new floors were added to Building C on THE CHILDREN'S HOSPITAL grounds, one of these floors, which was paid for by SHARON, was designated the SHARON CARDIOVASCULAR UNIT.

A staff meeting at THE CHILDREN'S MISSION TO CHILDREN.

Two Other Units are Added

THE CHILDREN'S HOSPITAL later made a further agreement with THE CONVALESCENT HOME FOR CHILDREN at Wellesley. Complete administrative responsibility for the facilities at Wellesley (hereinafter called the Wellesley Unit) was taken over by the Hospital with the understanding that the Wellesley corporation would contribute the major part of its income to its support. Next to become one of the affiliates in the MEDICAL CENTER was THE CHILDREN'S MISSION TO CHILDREN, an organization which began as a Unitarian group more than 100 years ago. A pioneer in the field of social work, THE CHILDREN'S MISSION TO CHILDREN gradually developed the plan of foster homes where children, deprived of their own family's love and security, were given good care under careful supervision. By 1914 this plan was extended to include hospitalized, convalescent children who were no longer acutely ill but who faced the danger of recurrent illness were they to return to their homes.

Close affiliation between the MISSION and the MEDICAL CENTER meant strengthening the whole structure of social service work at the CENTER. Arrangements were made in which the MEDICAL CENTER furnished the MISSION office space and facilities for its staff in close proximity to the MEDICAL CENTER itself, in addition to which the MEDICAL CENTER assumed responsibility for all medical services to patients of the MISSION.

Internal Developments

Each department, Medicine, Surgery, Orthopedic Surgery, Pathology, Dentistry, Radiology, now began its work of internal development. Certain over-all objectives were mapped out for organization. A new clinical department was initiated in Ophthalmology. The functions of several departments interested in neurological disturbances were now more closely integrated. The Child Health Unit was expanded with increased activity in the fields of growth and development. THE CHILDREN'S CANCER CENTER brought together a series of independent endeavors in cancer research and integrated all of the activities concerning problems of cancer in the entire CHILDREN'S MEDICAL CENTER.

Fine work was also being accomplished by the Department of Radiology in research and consultation as well as in X-raying the steadily increasing flow of patients, both in-patient and out-patient. It was inevitable that the plan for establishing a center for pediatric radiology should be presented and roughly sketched. The framework for the expansion of the pediatric pathology program was outlined at the same time.

The work in infantile paralysis under way at the CENTER was already of national importance. The test year for the Massachusetts Infantile Paralysis Clinics at the CENTER was 1949 when extraordinary demands were placed upon staff and facilities occasioned by the highest incidence of poliomyelitis in Massachusetts since 1916. During the year 743 new patients were admitted to the clinic, to make a total of 1,895 individual patients receiving care. The total number of clinic visits for these patients in 1949 approached the staggering figure of 17,053. The Physical Therapy Department worked to over-capacity. More than 600 patients with polio were given over 14,000 treatments in the Hospital, 3,000 of which were underwater treatments.

The Massachusetts Infantile Paralysis Clinic, staffed by THE CHILDREN'S MEDICAL CENTER personnel, proved capable of meeting the emergency. One of the chief functions of the Clinic was presenting instructional courses in polio treatment at the CENTER in conjunction with the National Foundation for Infantile Paralysis. These facts, coupled with the knowledge that the Clinic had amassed in its 34 years of existence complete records on patients with poliomyelitis, made the proposed plan of a center for infantile paralysis seem a natural evolution.

MUSCLE RE-EDUCATION *exercises done under water are an important part of polio treatment.*

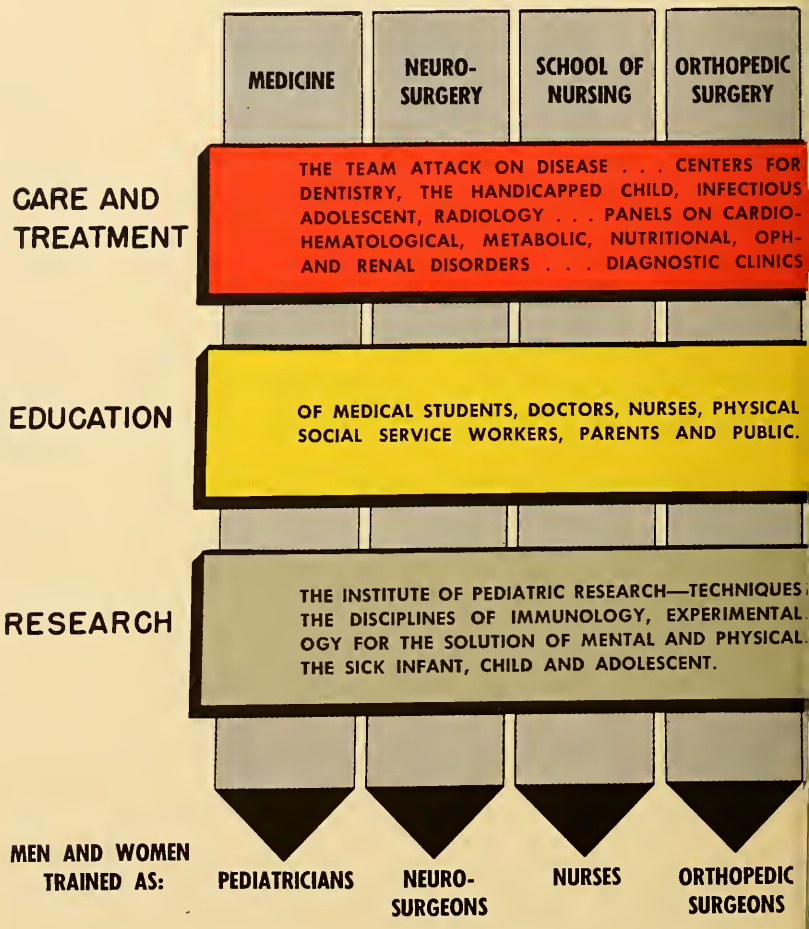
PART TWO

Do ye hear the children weeping, O my brothers?

ELIZABETH BARRETT BROWNING

THE CHILDREN'S

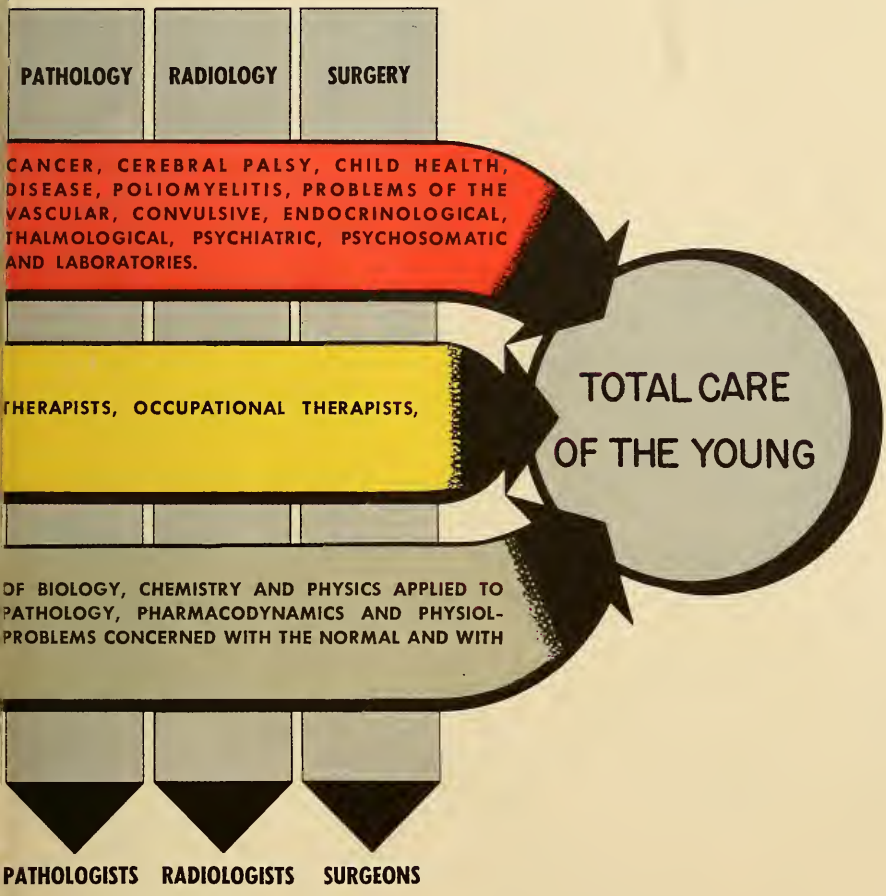
DEDICATED TO: THE PREVENTION AND CURE OF DISEASES OF INFANT, CHILD


MEDICINE
NEURO-SURGERY
SCHOOL OF NURSING
ORTHOPEDIC SURGERY
CARE AND TREATMENT
THE TEAM ATTACK ON DISEASE . . . CENTERS FOR DENTISTRY, THE HANDICAPPED CHILD, INFECTIOUS ADOLESCENT, RADIOLOGY . . . PANELS ON CARDIO- HEMATOLOGICAL, METABOLIC, NUTRITIONAL, OPH- AND RENAL DISORDERS . . . DIAGNOSTIC CLINICS
EDUCATION
OF MEDICAL STUDENTS, DOCTORS, NURSES, PHYSICAL SOCIAL SERVICE WORKERS, PARENTS AND PUBLIC.
RESEARCH
THE INSTITUTE OF PEDIATRIC RESEARCH—TECHNIQUES THE DISCIPLINES OF IMMUNOLOGY, EXPERIMENTAL OGY FOR THE SOLUTION OF MENTAL AND PHYSICAL THE SICK INFANT, CHILD AND ADOLESCENT.
MEN AND WOMEN TRAINED AS:
PEDIATRICIANS
NEURO-SURGEONS
NURSES
ORTHOPEDIC SURGEONS

The chart above illustrates the plan of operation of The Children's Medical Center. The six services and the School of Nursing of The Children's Hospital form the basic structure. Each of these divisions continues to train specialists in its respective field, to care

MEDICAL CENTER

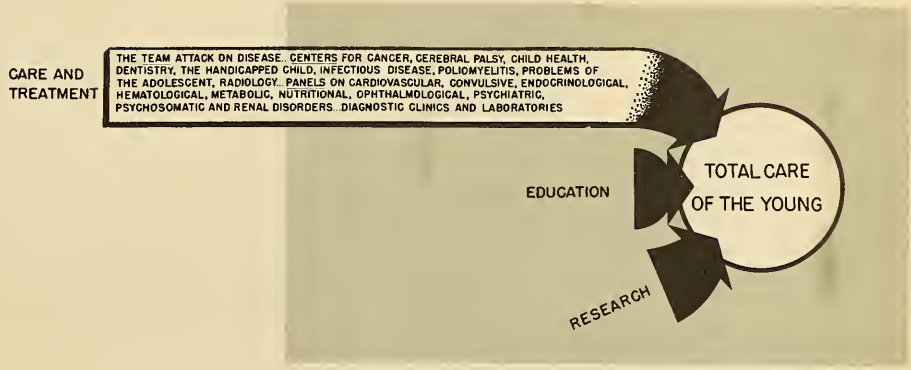
AND ADOLESCENT . . . TO RESEARCH . . . AND TO MEDICAL EDUCATION.



for patients, and to conduct individual research projects, but as the Medical Center is constituted, the three main areas of activity now cross departmental bounds by means of the TEAM APPROACH. The ultimate purpose is total care of the young.

CHAPTER IV

THE CARE AND TREATMENT OF PATIENTS


CARE AND TREATMENT
THE TEAM ATTACK ON DISEASE.. CENTERS FOR CANCER, CEREBRAL PALSY, CHILD HEALTH, DENTISTRY, THE HANDICAPPED CHILD, INFECTIOUS DISEASE, POLIOMYELITIS, PROBLEMS OF THE ADOLESCENT, RADIOLOGY.. PANELS ON CARDIOVASCULAR, CONVULSIVE, ENDOCRINOLOGICAL, HEMATOLOGICAL, METABOLIC, NUTRITIONAL, OPHTHALMOLOGICAL, PSYCHIATRIC, PSYCHOSOMATIC AND RENAL DISORDERS.. DIAGNOSTIC CLINICS AND LABORATORIES
EDUCATION
TOTAL CARE OF THE YOUNG
RESEARCH

THE CHILDREN'S MEDICAL CENTER has three main functions — the care and treatment of patients, research concerning the nature, prevention and treatment of diseases of early life, and a comprehensive plan of medical education. To make children well is the common purpose which binds these activities together.

As in any good medical institution, the chief concern of the staff of THE CHILDREN'S MEDICAL CENTER is the care and treatment of patients. Skilled pediatric specialists compose the staff, but this very fact presents a danger which THE CHILDREN'S MEDICAL CENTER has happily surmounted. In the expanding field of medicine today, specialization is essential to technical progress. As medical knowledge accumulates, doctors in increasing numbers are concentrating on areas in which they ultimately can make the greatest contributions. This trend has become alarming to those who feel that the good of the patient as a whole is overlooked in an effort to cure the immediate illness. At THE CHILDREN'S MEDICAL CENTER, where specialists abound, this danger has been circumvented by the application of the team concept, the guiding principle of the staff.

The Team Approach to Disease

Because the patients who come to the CENTER are likely to be children with rare conditions, they frequently cannot be classified arbitrarily as surgical, medical or orthopedic patients. A child with a neurological disturbance is often the concern of the neurologist, the neurosurgeon, the physician, and possibly the psychiatrist. Children entered with a diagnosis of cancer become the responsibility of men from all disciplines represented in the hospital.

Children from infancy to adolescence are cared for at THE CHILDREN'S MEDICAL CENTER.

The TEAM APPROACH *is well illustrated by the collaboration of the Center's staff on the problem of cerebral palsy. A diagnostic screening and consultation clinic is held for cerebral palsy patients with the many services interested in this problem participating.*

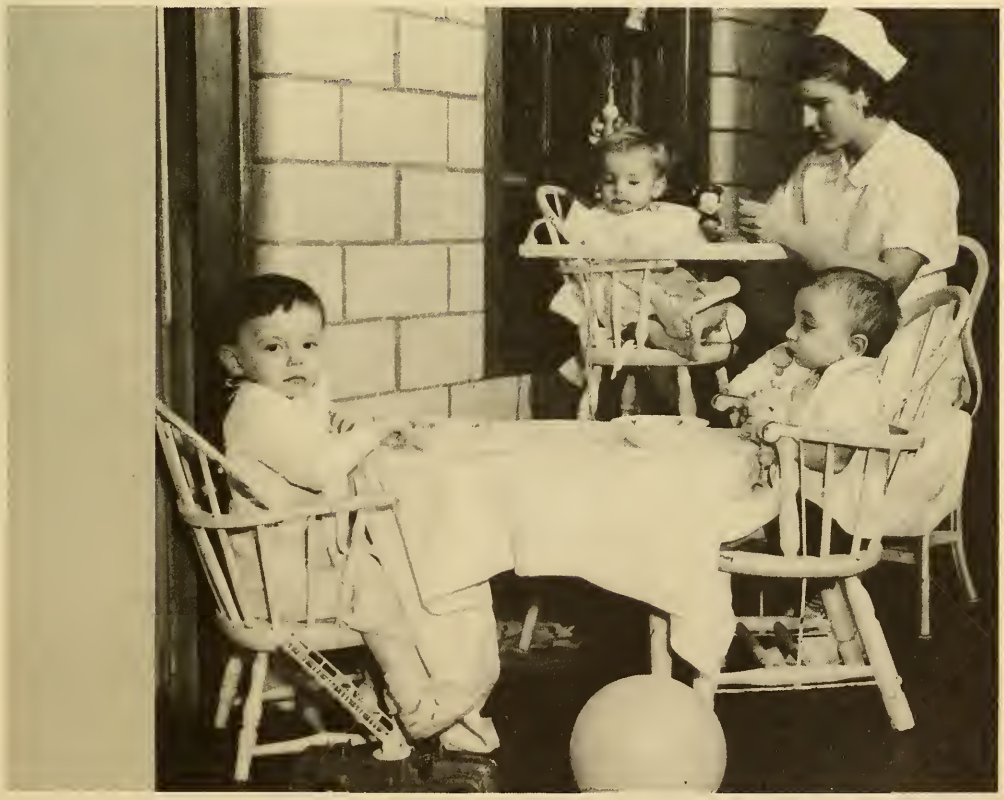
On the wards and in the clinics the team principle is seen in action daily. In the Chest Clinic, for example, a staff member of the Department of Medicine works with the resident in Otolaryngology, the Surgical Resident, and the Anesthesiologist to give patients with chronic diseases of the lung the best possible care. These four staff members lean heavily on the Department of Radiology for X-rays which will guide their work, the Division of Laboratories for careful studies of the microorganisms which are isolated from the sputum, and on a liaison with the Department of Physiology in the Harvard School of Public Health for measurements to determine whether or not the breathing function is improved by new methods of treatment.

The team principle of the MEDICAL CENTER operates in the epidemic aid units formed at the request of the National Foundation for Infantile Paralysis several years ago to meet outbreaks of poliomyelitis wherever they might strike. These units have been composed of a member of the orthopedic staff, a nurse, and a physical therapist, and have been active in North Carolina, Florida, Texas, Southern Missouri, and as far away as Berlin, Germany. Again and again the team is seen at work at THE CHILDREN'S MEDICAL CENTER, and always the goal is **total care of the whole child.**

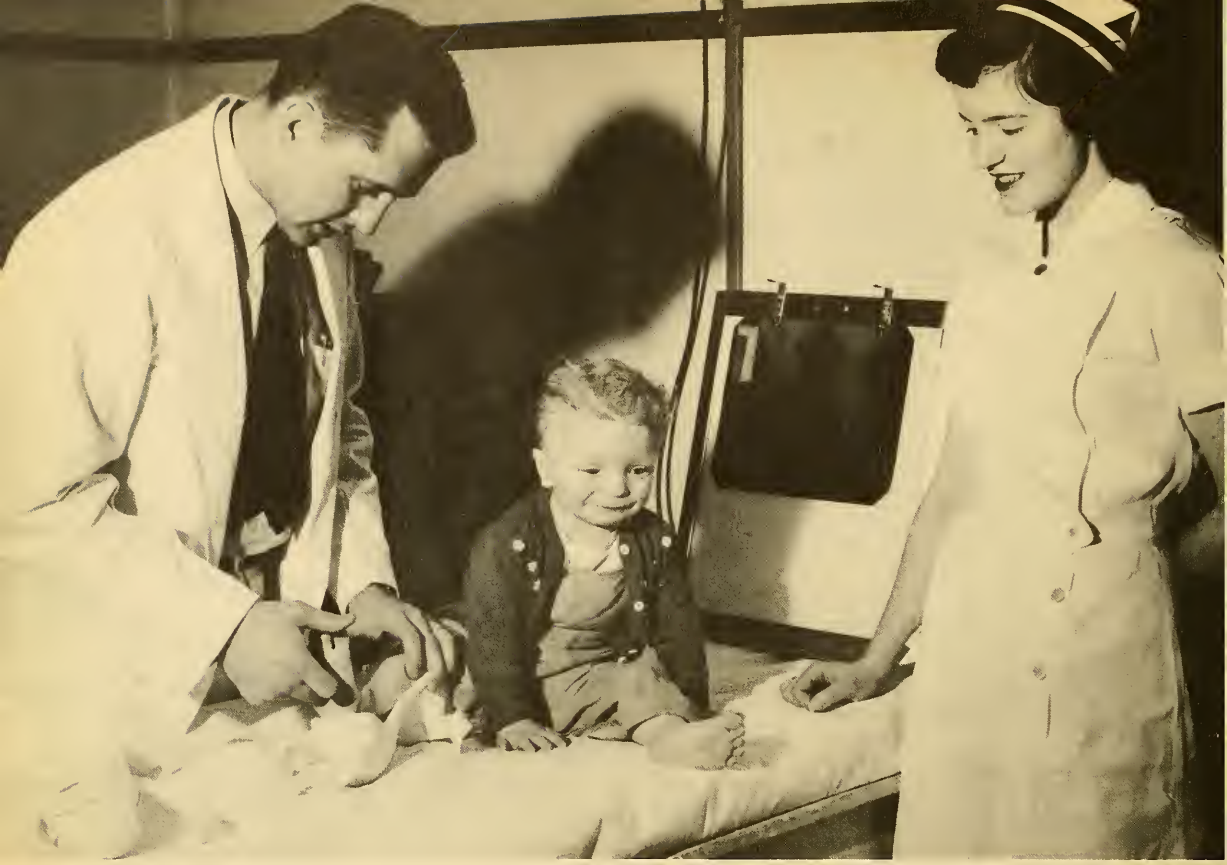
Predominance of Rare Pediatric Conditions

The most significant trend in the care and treatment of patients over the past ten years is not the increase in the number of children admitted both as in-patients and out-patients, but the change in the types of conditions treated. Chronic illnesses, rare neurological or cardiac disturbances, difficult congenital anomalies which entail intricate operations are being sent more frequently to the CENTER.

Patients from all over the United States and frequently from abroad are sent to THE CHILDREN'S MEDICAL CENTER with difficult diagnostic and therapeutic problems. In 1949 more than 1,000 patients were admitted from states other than Massachusetts to THE CHILDREN'S MEDICAL CENTER to avail themselves of its services. From outside the United States — the Azores, Bermuda, Canada, the Panama Canal Zone, Colombia, Guate-



FEEDING TIME *in the infants' ward of The Wellesley Unit.*



Thousands of children come yearly to the OUT-PATIENT DEPARTMENT *where numerous special clinics are held. Above: a young patient waits while his cast is removed and his foot exercised by a member of the Out-Patient Department staff.*

mala, Holland, Jamaica, Mexico, the Philippine Islands, Puerto Rico, South Africa and Venezuela—came patients with rare medical conditions. Due in part to this influx of highly specialized cases THE CHILDREN'S MEDICAL CENTER has become a source of new and invaluable pediatric data.

The high proportion of specialized problems has required increasingly complex facilities and a more specialized staff for their diagnosis and treatment. This, in turn, entails an increase in hospital expenses which patients with chronic diseases are frequently unable to meet. Into this gap have stepped various government and private philanthropic organizations which are beginning to meet the cost of such treatment. The development of closer liaison with the affiliated units of the CENTER has contributed greatly to the fine care which these patients are receiving. Children with rheumatic fever can be seen by experts and transferred without delay to the HOUSE OF THE GOOD SAMARITAN. Better integration of the services of THE CHILDREN'S HOSPITAL and the WELLESLEY UNIT has resulted in more effective utilization of the total available beds of THE CHILDREN'S MEDICAL CENTER.

Numerous Out-Patient Clinics

More than seven times as many children were treated in the Out-Patient Department of the CENTER as were admitted as bed cases in 1949. Many of these children were at one time bed patients and return to the Out-Patient for further treatment. Numerous special clinics have been organized for the care of particular groups of patients, especially those with chronic diseases such as epilepsy, cerebral palsy, congenital heart disease or nephrosis, who require continuity of care. In many of these clinics members of several departments cooperate in the care of the patient. These special clinics provide much of the clinical material for research upon which constantly improving treatment can be based.

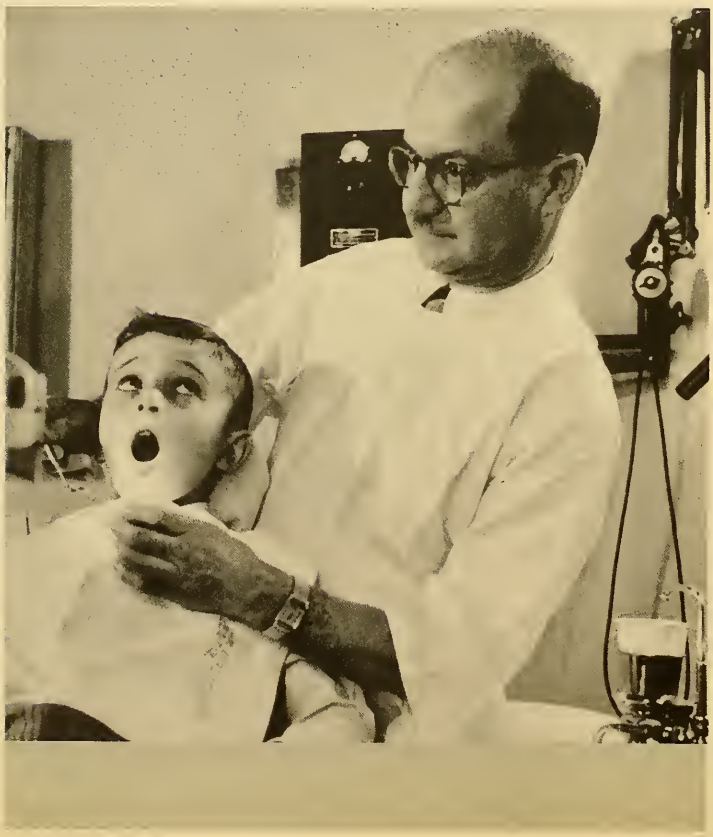
Special orthopedic clinics include those for club feet, for scoliosis and posture, for osteomyelitis, arthritis, and dislocated hips, as well as for infantile paralysis. Physical therapy treatment clinics are held continuously each day. Post-operative dental cases are taken care of in the dental clinic and are frequently seen as well in the speech clinic.

An important part of The Children's Medical Center service is the DEPARTMENT OF RADIOLOGY *where numerous children are x-rayed.*

General dentistry, frequently not an integral part of hospital service, is considered important at THE CHILDREN'S MEDICAL CENTER. Fillings, extractions, and straightening of teeth are done routinely. In addition, the staff treats traumatic cases including fractured jaws, cases of simple tumors and cysts, and local diseases of the mouth.

The Dental Service works closely with the Department of Surgery which includes cleft palate repair. Such cases frequently require special dental work. In addition, the Department of Dentistry has a Speech Therapist specially trained to work with children sustaining palatal clefts.

With the exception of an emergency service maintained twenty-four hours a day, out-patients sustaining dental complaints only are not accepted. Out-patient visits are the result of patients referred from clinics in major departments. For example, patients with heart disease or patients wearing orthopedic appliances are offered dental services for which the routine dental office is not usually equipped.



The advantages of a daily DENTAL CLINIC *are available in close proximity to the facilities of a modern children's hospital. Routine dental work is given, and in addition, the staff is trained and equipped to care for patients with special orthodontic problems, fractures, and local diseases of the mouth. Dental care is considered in relation to the health of the child as a whole.*

The introduction of a PSYCHIATRIC UNIT *at The Children's Medical Center reflects the increasing interest of the staff in the area of child psychiatry.*

Psychiatric Service Introduced

Now that many of the patients admitted to the CENTER are suffering from chronic illnesses which require more extended hospitalization, the staff has begun a study, initiated by the School of Nursing in cooperation with Boston University, designed to evolve routines of hospital care for children which will minimize the emotional trauma of hospitalization. The introduction of these studies has coincided with the appointment of a pediatrician trained in psychiatry and the establishment of a unit for research and teaching in this field.

The staff of the CENTER has recognized for some time that a large part of the practice of every pediatrician is now concerned with emotional problems and behaviour disturbances. Special funds have made it possible to launch a psychiatric unit for research and teaching. The first project to be undertaken by the new unit is the study of routines of hospital care for children, and it is the hope of the staff that out of these controlled studies will come techniques which will make hospitalization a constructive experience for the personality of the child as well as for his body.

Psychiatric service is carried also to the thousands of children who come to the Out-Patient Department of the CENTER during the year. As a result

of the interest of the CENTER'S consultant in psychiatry, Dr. George Gardner, Executive Director of the Judge Baker Guidance Center, arrangements have been made for interchange of personnel with THE CHILDREN'S MEDICAL CENTER. Men who are completing their training in child psychiatry under Dr. Gardner are assigned to the Medical Out-Patient Department where they serve as physicians in the psychiatric clinic. Here they act in a consultative capacity to the pediatricians and give psycho-therapy to a selected group of patients during the course of the year. In this way psychiatry is brought into close relationship with the practice of general pediatrics.

The Women's Committee

Another group which adds a touch important in an institution devoted to the care of children is the Women's Committee. With the development of THE CHILDREN'S MEDICAL CENTER the Women's Committee has organized an auxiliary which includes interested persons in all the affiliated divisions of the MEDICAL CENTER. These women contribute invaluable service to the CENTER. From the point of view of patient care the Volunteer Division of the Women's Committee is particularly important. Volunteers serve wherever needed throughout the CENTER, helping out in clinics, reading to patients in the wards, conducting children from the wards to the X-ray Department — to name but a few of their duties.

A WOMEN'S COMMITTEE *volunteer helps to amuse children in the Out-Patient Department while they await their appointments.*

The Child and His Environment

Concern about total care of the child in terms of his home environment has fallen chiefly to the Social Service Department, which works very closely with the medical staff. The Social Service Department at THE CHILDREN'S MEDICAL CENTER was one of the early medical social service departments in the United States. It traces its origin to the old Out-Door Relief Department established in 1894, which was a follow-up service in the homes established to see that patients received good post-hospital care. It arose from the general feeling among physicians and surgeons that there was need for closer touch between the medical staff and patients and parents in the homes.

The Social Service Department has a staff of twelve workers. Patients are usually recommended to the department by staff doctors, frequently, although not always, because the child has a chronic disease requiring prolonged treatment. In these cases the social worker endeavors to help the child make the necessary emotional adjustments to his affliction. Often it is the parents who need assistance in meeting emotional difficulties with regard to the child's illness. When practical problems arise which may affect the immediate treatment and future health of the child, the social worker may be called upon to suggest ways of overcoming these obstacles.

The importance of this social work lies in the fact that the staff of THE

In certain cases, the SOCIAL WORKER *serves as a liaison between the doctor and the parents in order to promote the best care of the child in his home environment following hospitalization.*

CHILDREN'S MEDICAL CENTER believes that the child is more dependent than the adult on his environment for his physical care and emotional adjustments. His family and community background is of primary concern as it provides not only the care the child needs in illness and convalescence, but is the major factor affecting his general growth and development.

The Social Service Department works closely with a variety of community agencies and, because of the wide geographical distribution of THE CHILDREN'S MEDICAL CENTER'S patients, frequently has contact with agencies beyond the local area. The Social Service Department is concerned with institutional and foster home placements for patients who cannot receive convalescent and chronic care at home. In this work the Department cooperates closely with THE CHILDREN'S MISSION TO CHILDREN, which takes patients from THE CHILDREN'S HOSPITAL and other community hospitals in the vicinity. A camp program, now in operation through the Social Service Department, with the help of outside funds, has enabled more than a hundred children each year to go to summer camps in New England for health improvements or social adjustments.

FOSTER HOMES *are provided for children who are not able to have proper convalescent or chronic care at home by The Children's Mission to Children.*

No one is closer to the child during hospitalization than the NURSE. *Children's Hospital nurses are trained in the techniques of child care and are particularly skilled in helping their young patients meet the emotional problems which arise during hospitalization.*

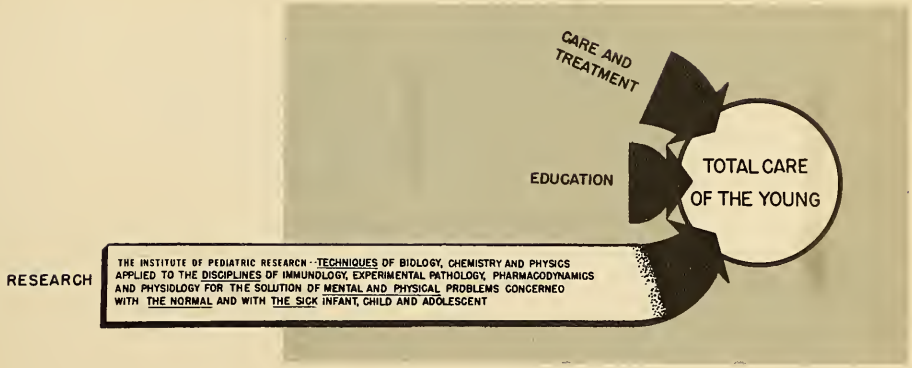
Nursing Service

No report of the care and treatment of patients in any hospital would be complete without discussion of the contribution of the nursing service. Of the many people concerned with the care of the patient none is closer to him than is the nurse.

The senior members of the staff, who are responsible for the nursing care of patients, have special preparation in the field of pediatric nursing. It is they who supervise the student nurses and the large staff of graduate nurses and auxiliary workers. They seek always to improve the quality of patient care by helping individuals to develop understanding of the emotional, physical and social needs of the child, so necessary to comprehensive care, as well as to perfect the special skills essential in the nursing of sick infants and children.

CHAPTER V

RESEARCH IN PEDIATRICS


CARE AND TREATMENT
EDUCATION
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RESEARCH
THE INSTITUTE OF PEDIATRIC RESEARCH--TECHNIQUES OF BIOLOGY, CHEMISTRY AND PHYSICS APPLIED TO THE DISCIPLINES OF IMMUNOLOGY, EXPERIMENTAL PATHOLOGY, PHARMACODYNAMICS AND PHYSIOLOGY FOR THE SOLUTION OF MENTAL AND PHYSICAL PROBLEMS CONCERNED WITH THE NORMAL AND WITH THE SICK INFANT, CHILD AND ADOLESCENT

PRIOR to the establishment of the Division of Laboratories and Research with its new facilities, equipment and expert manpower, there were six major divisions of THE CHILDREN'S HOSPITAL which were conducting independent investigations into the diseases of early life. Fine work developed from the research program of the division of medical pediatrics which initiated investigations in the fields of metabolism, nutrition, neurology, hematology, and immunology. The surgical and orthopedic research laboratories carried on either fundamental or applied research in the various divisions of their fields. The Department of Pathology concerned itself with investigations in the field of nutritional pathology, vitamin deficiency states, cancer in early life and the nature of congenital malformations.

Establishment of the Division of Laboratories and Research in 1946 brought together all the routine effort in the areas of biochemistry, bacteriology, clinical pathology—the latter in each of its branches including hematology and electrocardiography. With this unification of effort the routine clinical laboratory work was greatly improved and now is maintained on a uniform high level in the Clinical Laboratories Division. This change makes a better integrated plan, and is designed to free the specialists for more significant contributions in their fields of concentration.

Unification of Work

The Departments, in addition to their specialized research, had problems common to all their fields. With the creation of a Division of Laboratories and Research, laboratories maintained for specialized purposes are integrated now with those of all other divisions. More specifically the plan calls

In RESEARCH *lies the key to the future in pediatrics.*

for research sections in biochemistry, infectious disease (bacteriology, immunology, parasitology), biophysics, pharmacodynamics, physiology and pathology.

The principal units are in charge of men who hold professorial rank at Harvard Medical School and provide liaison with the appropriate departments there to teach and train graduate students, exchange ideas and cooperate in research. Their three main duties are: first, consultation with any member of the hospital staff who desires advice, or criticism; second, collaboration in research projects with members of THE CHILDREN'S MEDICAL CENTER staff or with members of other laboratory divisions whenever teamwork is indicated; third, conduct of their own research whenever independent investigation appears to be more worthwhile.

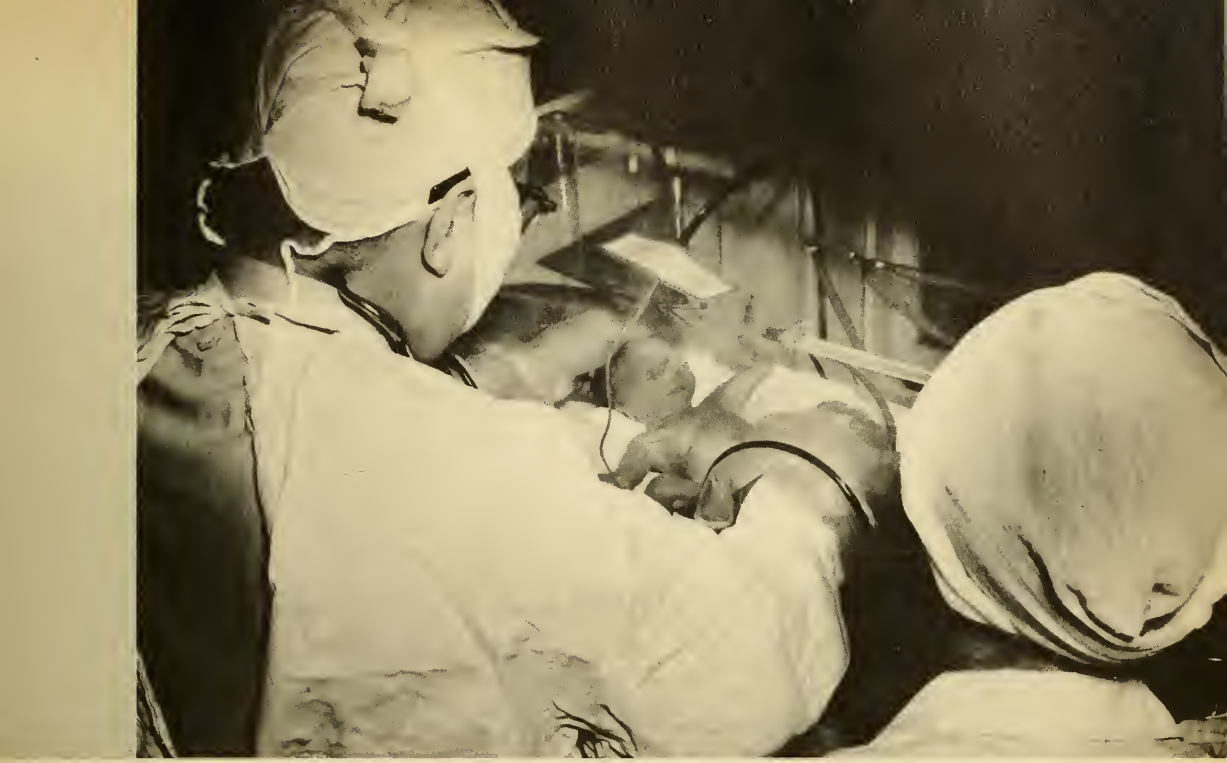
Research in the Department of Medicine

The independent research units of the several departments of THE MEDICAL CENTER continue as before in association with these laboratory divisions. The Department of Medicine carries on many important investigative projects. At the time of the development of the new plan in 1947, significant studies were under way in the metabolism division on the pathogenesis and therapy of various disorders of body fluid physiology and on the extra- and intracellular distribution of electrolytes and water studies of the physiology of the blood proteins in collaboration with the Department of Physical Chemistry of the Harvard Medical School. Important data was added to clinical knowledge concerning cystic fibrosis of the pancreas, a serious chronic nutritional disease of infancy and childhood.

In the hematology division important contributions have been made to knowledge of erythroblastosis fetalis, a serious disease of the new-born infant caused by incompatibility of blood of the mother and the baby. Methods for more accurate RH typing, for preparing serum for such typing, and particularly for replacing the whole blood volume of the baby soon after delivery have been developed and have contributed greatly to improved care of infants with this disease. Other research projects within the Department of Medicine include studies on nephrosis, a chronic disease of the kidneys, and experimental hypersensitivity to foreign proteins.

Other Areas of Research

Research into the nature and complexities of neurological diseases in childhood have been part of THE CHILDREN'S HOSPITAL program for many years. Work on the genetic factor in epilepsy and evaluation of new drugs continues in the Seizure Unit. The problem of cerebral palsy is being investigated by many members of the staff working in collaboration. Pioneer work is being done by the neurological staff in the evaluation of neurologically handicapped children.



Studies in the postnatal care of PREMATURE INFANTS *conducted at The Children's Medical Center have attracted wide attention in the field of medicine.*

Studies which have attracted national attention concern the adjustment of the premature baby to the external environment. The importance of iron and hemoglobin metabolism in the prenatal and postnatal life of the baby is being investigated as well as the effects of good and bad nutrition in the mother on the baby. Pulmonary diseases are under study particularly bronchiectasis, a chronic and disabling disease of the lungs, and the problems of respiratory physiology. Studies of the administration of drugs like penicillin by inhalation and the value of streptomycin in the treatment of tuberculosis in childhood are also being conducted.

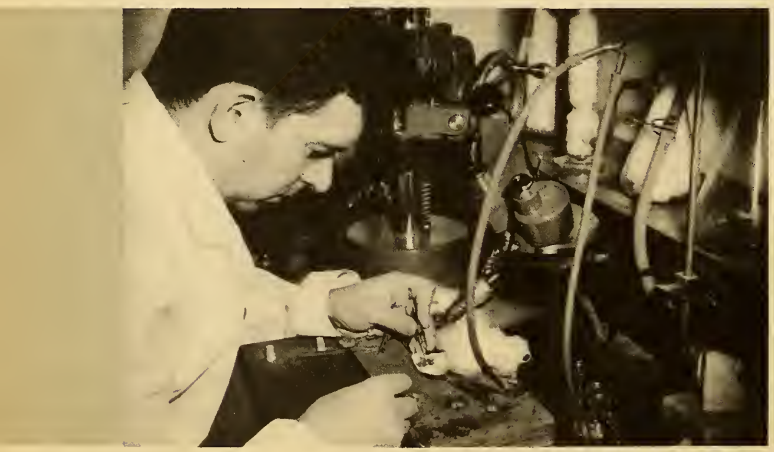
In 1947 work was going on in the laboratories on the treatment of meningitis. The emphasis on these studies has shifted, however, because of the steadily decreasing mortality rate. Now efforts are concentrated on the intellectual and neurological development of the child following infection. Nutrition and its relation to physical growth and development, allergies, and the application of epidemiological methods to the study of congenital anomalies are among other independent investigative projects in laboratories of the Department of Medicine.

Orthopedic and Surgical Studies

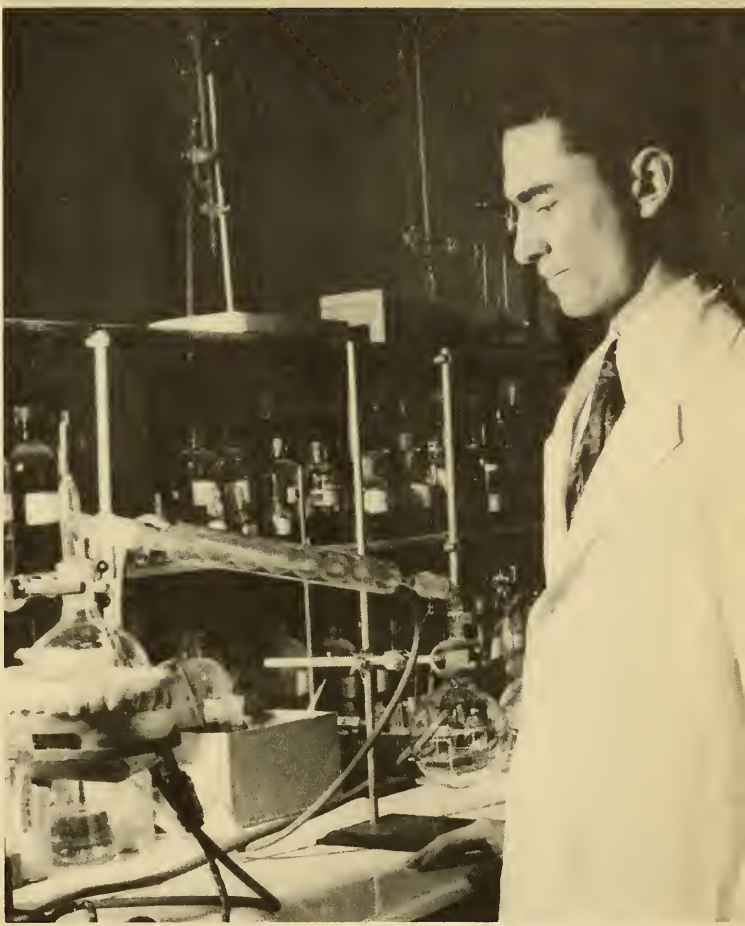
On the orthopedic side of the CENTER's activities, a five-year grant has been made by the National Foundation for Infantile Paralysis for continuation of research into the field of poliomyelitis. Information of value has already been unearthed concerning circulation in paralyzed extremities. One staff member is particularly concerned with certain pathologic processes in bone as well as a study of the circulation in bone and methods calculated to stimulate bone growth. The laboratory for Surgical Research has made important contributions to the development of methods for resection of portions of the esophagus, for resection of the rectum and the rectosigmoid with preservation of the anal sphincter, and for the hemogeneous grafting of blood vessels. These are but a few of the projects in surgical research in addition to the fine cardiac work previously mentioned.

Research in Pediatric Pathology

In the Department of Pathology the independent research projects make an impressive list. Investigations into the respiratory problems of the neonatal period, studies in the field of acute myocarditis in early life, and other work concerning the embryologic phases of congenital malformations of importance to early life are but a few. Significant conclusions have been reached in fundamental studies in the cellular structure of the brain at various age levels. Investigations in the field of chronic nutritional disorders including mucoviscidosis particularly with relation to the biology of the bacteria associated with this disease have also been conducted. A whole program of research in the Department of Pathology has concerned descriptive studies in congenital heart disease. Advances in cardiac surgery and roentgenology, have now made further investigation into the malformations of the great vessels of the heart of great importance.



In the CANCER RESEARCH *laboratories countless experiments have been conducted to test the activity of different compounds and their effects on various cancerous conditions. Left: a member of the staff removes the part of a pituitary gland which secretes ACTH.*



The research staff of the Center includes many non-medical specialists who are contributing greatly to fundamental research in pediatrics. Right: an ORGANIC CHEMIST *on the staff sets up vacuum distillation equipment in preparation for a new experiment.*

The largest research program of the Department of Pathology has concerned the problems of cancer in children, out of which has grown the first world foundation established exclusively for research into the cause and cure of cancer in early life. About the time of the establishment of the MEDICAL CENTER plans were implemented to provide any doctor diagnostic service and therapeutic advice on cancer with the aid of a grant from the National Cancer Institute. Just previous to this time experimental cancer studies had reached the point of justifying application to the patient.

This preceding brief summary does not begin to touch upon all the research projects under way at THE CHILDREN'S MEDICAL CENTER during its first years. There has been virtually no area of the field of pediatrics in which some significant work has not been conducted. And in each division of activity — medicine, surgery, pathology — there has been coordination through the new Division of Laboratories and Research and utilization of the newly created basic research sections.

Dental Research

It is not commonly known that a child's teeth contain microscopic permanent records of chemical changes in his body, particularly disturbances occasioned by disease, from the foetal stage until he reaches approximately the age of twelve, when development of the teeth eventually ceases. However, the early record remains and gives doctors an amazing insight into primary symptoms of body disturbance.

This fundamental pedodontic fact has served as the basis of considerable clinical research on the dental manifestations of certain chronic pediatric conditions, such as congenital heart disease and jaundice of the new born. These studies are continuing. Disease affecting the mouth, such as the response of mouth tissues to virus diseases, bacterial and fungus infections, and chemical changes are being recorded and studied.

One of the important projects now under way concerns thumb-sucking, which is being studied from all aspects, particularly the psychiatric. The effects of home environment and social attitudes on this common habit are being observed, and the degree of distortion in various cases compared. In addition, the physiological and psychological factors involved in such distortion are also being weighed. The results of this research may have a marked effect on child training as well as dental care.

Facilities of all the research laboratories of the Hospital are available to the Dental Department as they are to all other special clinics. Cooperative observations are made on patients with special problems where clinical laboratory studies are being conducted. For example, dental studies are now in progress on patients sustaining diabetes and resistant rickets.

Special Research Units

The Laboratories of Nutritional Research conduct studies in hypervitaminosis, growth factors in cartilage, and the relation of Vitamin A to the healing of rickets. The Laboratories of Infectious Disease, one of the most important new divisions, are carrying on research programs dealing with cultivation of the poliomyelitis viruses, a study of the virus of chicken pox and epidemic pleurodynia, and the unknown causes of some of the severe diarrheas of early life. In addition to these independent investigations, fundamental work has been conducted on means of increasing the susceptibility of laboratory hosts to various infections. This division has worked on a program of cooperation with the surgical research group in the study of the survival of blood vessels and vascular tissue under various conditions.

Another new division which has immediately contributed its own research activity as well as routine research in its specific field for all departments is the Laboratories of Research Biochemistry. Work has been initiated on the significance of the concentration of certain of the amino acids between cells and within cells — a project of fundamental importance to nu-

trition in early life in general and specifically with applications of great interest in the field of cancer. The study of a new diagnostic procedure in pancreatic insufficiency has been carefully investigated by the director of the Division in collaboration with the head of the Clinical Laboratories.

Elimination of Duplication in Research

What has this expansion and reorganization of research at THE CHILDREN'S MEDICAL CENTER accomplished? It means for one thing, eliminating duplication of effort within the CENTER as a whole. The creation of the Clinical Laboratories leaves each service free to pursue research vital to its own field of concentration. Significant too, is the fact that, in the Division of Laboratories and Research, specialists in all the various sciences touching upon medicine work side by side with doctors and laboratory technicians. New problems in the fields of physics, chemistry and biology in relation to specific medical problems are studied by men trained especially in these fields. The contributions of these scientists cannot be underestimated.

Key Research Projects

To trace the growth and development of every research project at THE CHILDREN'S MEDICAL CENTER, to enumerate all the vital contributions made to the advancement of medical progress is impossible in a brief report such as this. By spotlighting a few, the story of the whole is told by implication.

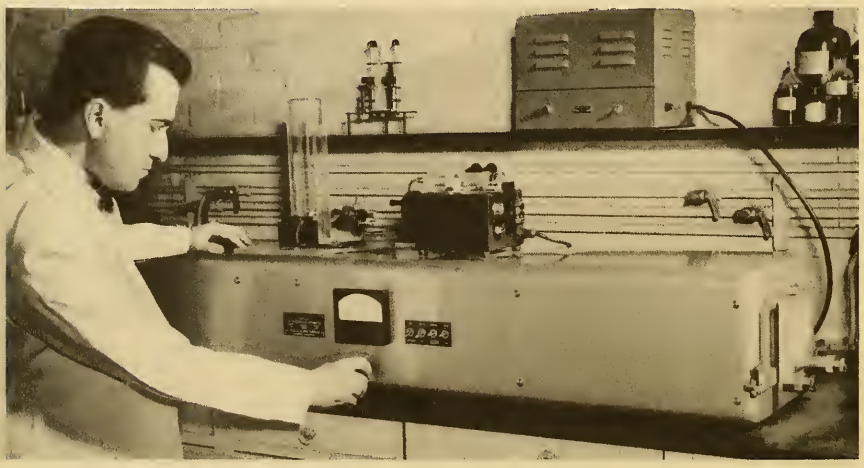
A member of the staff of the HARVARD SCHOOL OF PUBLIC HEALTH *takes samples of air breathed by an iron lung patient in order to analyze its content and to determine more accurately the proper amount of ventilation needed.*

One of the foremost research projects conducted by the Department of Orthopedic Surgery concerns growth. Of particular concern to the research staff has been the effect of poliomyelitis upon growth and upon the mechanisms by which such effects occur. Gradually the orthopedic research staff has worked on a program of developing and evaluating methods of correcting malformations affecting the length of the lower extremities. Mathematical calculations predicting the growth of a given child, particularly with regard to the lengths of the lower extremities at maturity, have been developed. Another project concerning the study of the evolution of muscle atrophy following poliomyelitis has also been initiated.

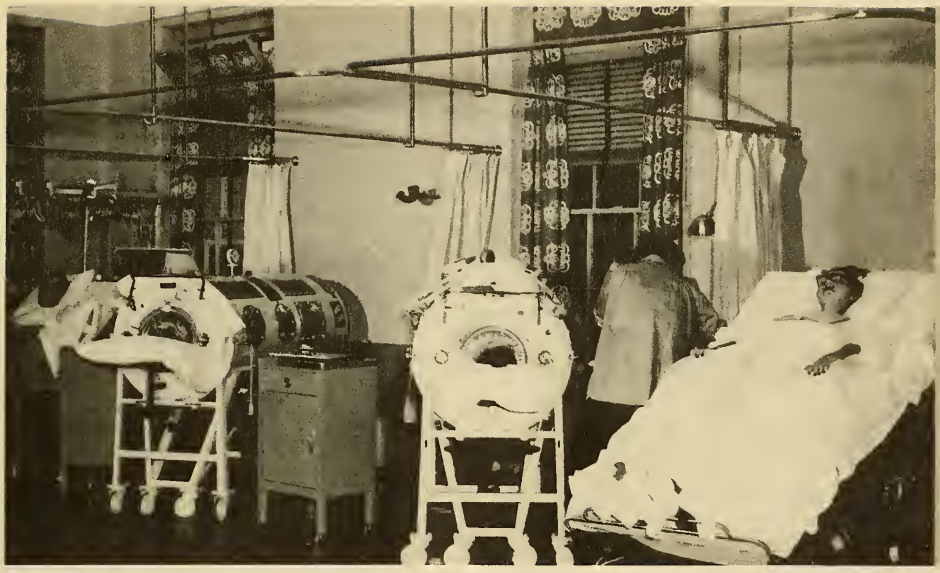
Significant developments meanwhile have taken place in the neurosurgical laboratories. One of the chief accomplishments in recent years was the development of a new surgical technique to alleviate hydrocephalus in animals. Currently the neurosurgical laboratories are doing experiments in connection with the circulation in the brain. There is hope that out of this work will come results which should have important bearing on new neurosurgical techniques. Important too, is the research activity concerning the use of radioactive isotopes in the localization of brain tumors.

How Research Is Financed

No story on research in any institution would be complete without touching upon how the many projects are financed. There are basic endowments made to any private institution by those either closely affiliated with or deeply interested in the work of the institution itself. Large grants are contributed by national foundations, which are private organizations set up to further research in specific areas of disease. The National Foundation for



A staff member adjusts the TISELIUS ELECTROPHORESIS *apparatus which makes possible the separation and study of the mobilities of proteins and protein mixtures in electrical fields.*



THE MARY MACARTHUR RESPIRATORY CENTER *in the Wellesley Unit is sponsored by the National Foundation for Infantile Paralysis.*

Infantile Paralysis, for example, has equipped The Respiratory Unit at Wellesley and will support research there. Government support is obtained through the United States Public Health Service which has the task of distributing public funds throughout the United States to hospitals and educational institutions best equipped and staffed to carry on needed research programs. Generous grants are received from private industry. Many of these are from companies which, by the nature of their products, have a vital interest in the field of medicine. Many others are from companies which, as part of the American economic system, feel a certain responsibility to the public welfare and give evidence of it by their sponsorship of medical projects.

Private philanthropic organizations seek to perform good deeds in the public interest by contributing to research programs in schools and hospitals. And always there are the generous private citizens who respond readily to public drives for funds in the fight against disease. Of great importance, are the many welfare agencies which contribute annually to the maintenance and support of research units in key medical institutions. Added to these are donations from families of patients throughout the United States and abroad who were cured or helped by the staff of THE CHILDREN'S MEDICAL CENTER.

The Founding of the Children's Cancer Research Foundation

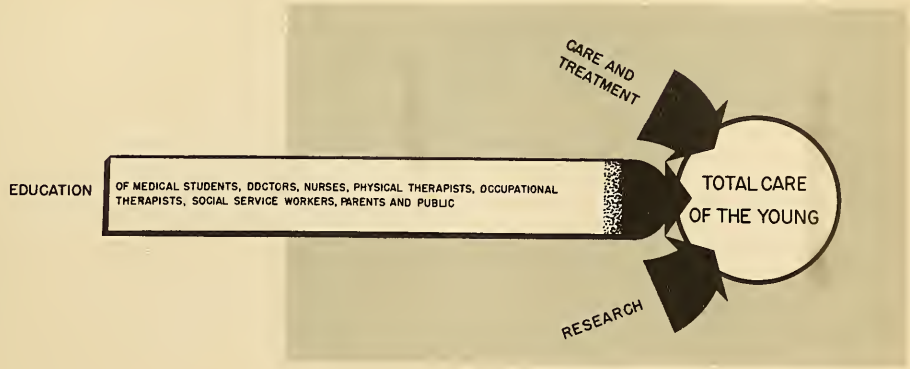
Perhaps the most exciting research development which has received public support is that which led to the development of the Children's Cancer Research Foundation. For many years the staff of THE CHILDREN'S HOSPITAL had quietly pursued an intensive program of research into the causes and possible methods of cure of cancer in children. Support during the first five years was obtained from the National Cancer Institute of the United States Public Health Service. When research at THE CHILDREN'S HOSPITAL warranted expansion of facilities so that there might be application of the results to children with widespread cancer, new resources were brought to the aid of the research team by the Variety Clubs of New England which organized the Children's Cancer Research Foundation.

As an independent unit cooperating with THE CHILDREN'S MEDICAL CENTER, this foundation, now sponsored by the Boston Braves, the motion picture industry, and the people of New England, has not only made possible undreamed of progress in the search for new chemicals and hormones for the treatment of incurable cancer in children, but has also undertaken the construction of a new research building which will furnish excellent facilities for further work and progress.

The Little Boy
Who Ran Away
AMERICAN
SERVICE

CHAPTER VI

THE BROAD APPROACH TO EDUCATION IN PEDIATRICS


CARE AND TREATMENT
EDUCATION
OF MEDICAL STUDENTS, DOCTORS, NURSES, PHYSICAL THERAPISTS, OCCUPATIONAL THERAPISTS, SOCIAL SERVICE WORKERS, PARENTS AND PUBLIC
TOTAL CARE OF THE YOUNG
RESEARCH

PEDIATRICS today is an accepted and fundamental part of every approved medical school curriculum, but in the early days of THE CHILDREN'S HOSPITAL pediatrics as a separate branch of study was virtually unknown. It was not until 1888, as has been stated previously, when Professor Rotch was appointed to the Harvard Medical School faculty, that THE CHILDREN'S HOSPITAL became affiliated with Harvard so as to provide clinical instruction in pediatrics as a separate discipline.

For many years pediatrics was a branch of study in Harvard's Department of Medicine having little or no relation to the surgical, orthopedic and radiological services which were evolving at THE CHILDREN'S HOSPITAL. Gradually, however, the pediatric curriculum was broadened, due in large measure to the unique opportunity afforded by Harvard's affiliation with the Hospital. As the broad base of diseases treated at THE CHILDREN'S HOSPITAL widened, and as the Hospital progressed into an institution which would be recognized as the first general hospital for children in the world, Harvard Medical School began to integrate the clinical knowledge available there more closely with its teaching program.

Today pediatric instruction in surgery, orthopedics, and radiology as well as medicine is basic training for Harvard medical students. So close has the liaison between the two institutions become that the chiefs of Medicine, Surgery, Orthopedic Surgery and Pathology at the Hospital now hold professorships at Harvard. In addition, all of the staff members in important positions at the Hospital are associate professors, assistant professors or instructors on the Harvard faculty. The transition from THE CHILDREN'S HOSPITAL to THE CHILDREN'S MEDICAL CENTER has only further cemented this relationship. The basic purpose of the Center — **total**

EDUCATION IN PEDIATRICS *is an all-inclusive program at The Children's Medical Center.*

care of the child — has had such a marked effect on the teaching program that it may well be said that this principle is emerging as the approach to the future in pediatrics.

Undergraduate Curriculum

The breadth of the program for Harvard undergraduates at the Center is best seen by its curriculum. Undergraduates come into contact with THE CHILDREN'S HOSPITAL in their first year when several of the services participate in general lectures. In the second year students meet with members of the surgical staff of the Hospital for sessions on the surgical aspects of physical diagnosis. Second-year students are also given lectures on physical diagnosis from the neurological and orthopedic points of view. Actual conferences, demonstrations and teaching sessions at Harvard and at THE CHILDREN'S HOSPITAL are given to second-year students in pathology.

During the third year an intensive course is given designed to provide all students with clinical experience in the many fields of medicine and surgery represented at the Center. Demonstrations are given on the radiological aspects of pediatric disease. On the various wards and clinics and in the Out-Patient Department students have the opportunity to see patients

The Children's Medical Center, adjacent to the Harvard Medical School, provides PEDIATRIC TRAINING *for Harvard students. Above: fourth-year students attend class.*

and to discuss case diagnosis and treatment. Two-thirds of the fourth-year students return for more advanced work in the Department of Medicine. Selected students are chosen in the fourth year for further study in pathology and orthopedics, and each month two fourth-year students are taken into the Departments of Surgery and Orthopedic Surgery and the Department of Radiology for intensive study.

Residencies in Pediatrics

Appointments as Residents at THE CHILDREN'S HOSPITAL are set up to train medical school graduates to meet certification requirements in their special fields of concentration.

Each service at the HOSPITAL has a somewhat different program outlined, but in each, emphasis is always on service to the patient while the interne broadens his medical experience. In the Department of Medicine a new doctor begins every six weeks throughout the year and progresses through the Medical Service with a change of assignment every six weeks for his full period of nineteen-months residence. At the termination of his appointment, if he desires to do so, he may complete his training by serving for a period of several months in the Out-Patient Department. The internes are under

KEEPING CHILDREN AMUSED *to make the long days during hospitalization go more quickly is always a problem in a children's hospital.*

The Boston public school system provides TEACHERS *for children able to spend a brief time each day with their books.*

the supervision of a group of assistant residents, men who have completed two years or more of training, and the Chief Medical Resident. There are also externes and voluntary assistants who live outside the hospital and who work all day in the Medical Out-Patient Department under the supervision of its Chief.

Medical Men in Training

The classes of men in medical training include the Chief Resident and the Resident in the Medical Out-Patient Department, both of whom have considerable administrative responsibility, Senior Assistant Residents, Junior Assistant Residents—including internes and medical house officers, Clinical Fellows or Externes, Affiliated Residents, and Research Fellows. In general, these groups, with varying degrees of responsibility and always under supervision, admit and care for patients, handle emergencies, and carry out the routine medical duties of a hospital. Research Fellows are the only exception, as they come for training in research under the direction of senior men on the staff, are supported by research grants or fellowship stipends from outside sources, and are exempted from routine duties in connection with the care of patients.

Follow-up treatment for hospitalized patients is given in the Out-Patient Department *where children receive periodic check-ups.*

THE CHILDREN'S MEDICAL CENTER, in its effort to be of as great service as possible, has entered into affiliations with other teaching hospitals in several states. A series of fellowships has been set up with the Baylor University School of Medicine and the teaching hospitals in Houston, Texas, through the gift of Mr. Jesse Jones which enables especially selected men to come from Houston to THE CHILDREN'S MEDICAL CENTER. Several teaching hospitals in New England send men to avail themselves of the broad opportunities for clinical experience in the Medical Out-Patient Department. Of particular significance in the medical teaching program for affiliates is coordination with the Judge Baker Guidance Center.

Orthopedic Residents

The residency training program in orthopedic surgery has long been accepted as one of the finest in the country. It was one of the early orthopedic training programs, and its graduates form a distinguished section of American orthopedic surgeons. The four-year training program is integrated with the Massachusetts General Hospital and the Peter Bent Brigham Hospital so as to develop a well-balanced experience and instruction program. A Chief Resident is appointed for one year, from two to four Junior Residents also for one year, and four Assistant Residents who hold combined appointments—one year at THE CHILDREN'S HOSPITAL and one year at the Massachusetts General Hospital. The work of this latter group is sometimes supplemented by six months laboratory or research service. The Chief Resident on the orthopedic service is both a coordinator and a participator, conducting ward rounds and supervising the care of patients in the clinics as well.

Residents in Pathology

The Department of Pathology has a broad teaching program which encompasses not only men who plan to be pathologists but those who will go on to work in surgery, medicine, orthopedic surgery, neurosurgery and radiology as well. One resident and several internes are appointed each year to the Department. The resident must be a man who has previously studied adult pathology. Two internes are also appointed to the Clinical Laboratories. A wide cross-section of doctors representing the various other branches of medical study are appointed as graduate assistants. Each year the Department accepts from ten to fifteen such doctors. Four hundred men in the last twenty-three years from many parts of the United States and the rest of the world have taken from six-months to two-years postgraduate training in pathology. All have carried out the duties of house officers and residents.

Training in Surgery

The Department of Surgery appoints a Chief Resident, four Assistant Residents and six Junior Assistant Residents each year. The Chief Resident performs operations under the supervision of the Surgeon-in-Chief and has general supervision of the house staff, ward rounds and clinic work. Assistant Residents work under the Chief Resident, perform minor operations, and generally participate in the duties of ward rounds and clinics. Junior Assistant Residents on the surgical service work in the clinics, on the wards, observe at operations and occasionally perform operations themselves under the close supervision of their superiors.

RADIOLOGISTS *spend considerable time reading x-ray film in order to assist in the accurate diagnosis of various pediatric conditions.*

Radiological Specialists

The Department of Radiology appoints one resident annually. The work of this resident is credited toward the board requirement of three-years specialized training in radiology before he may be certified as a specialist. In addition, all X-ray residents of the Peter Bent Brigham Hospital are sent in rotation for six-months training to THE CHILDREN'S MEDICAL CENTER. Special postgraduate students, particularly interested in radiology, are assigned by Harvard to the Center's Department of Radiology. Frequently radiologists or pediatricians certified as specialists who feel the need of additional experience in radiological training come to the Center for from one to three-month periods.

Adult and Child Neurosurgery

The Neurosurgical Service appoints a clinical resident for a period of one year. An Assistant Resident and interne are also appointed for four-month and two-month periods respectively. As the Neurosurgical Service

of THE CHILDREN'S MEDICAL CENTER works very closely with that of the Peter Bent Brigham Hospital, these residents have the opportunity of studying both adult and child neurosurgical problems. In addition, from two to four research fellows work in THE CHILDREN'S MEDICAL CENTER laboratories constantly on neurosurgical problems.

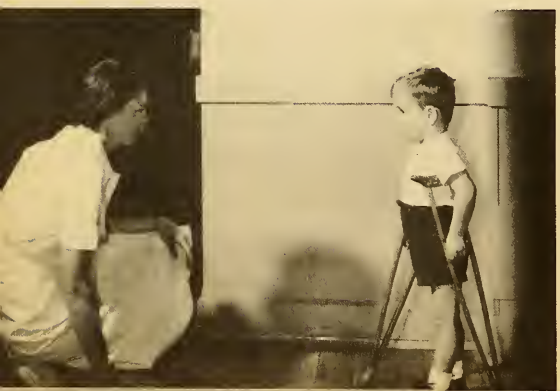
Education in Dental Pediatrics

For students planning to concentrate in dental pediatrics, THE CHILDREN'S MEDICAL CENTER offers the advantages of a daily Dental Clinic in close proximity to the facilities of a modern children's hospital. Dental problems are not considered an isolated area of child care but are treated in relation to the health of the child as a whole.

The CENTER'S Department of Dentistry is affiliated with the Harvard School of Dental Medicine. Dental undergraduates study for their first two years at the Medical School with no difference between their curriculum and that of other medical students. Technological procedures are taught in the third year at the infirmary of the School of Dental Medicine, and in the following year students attend visiting clinics at THE CHILDREN'S HOSPITAL and the Massachusetts General Hospital where they are allowed to work on patients under the supervision of instructors. At THE CHILDREN'S MEDICAL CENTER dental and medical students see patients together in the Medical Out-Patient Department. This enables both groups to benefit from a mutual exchange of specialized information.

For the dental student wishing to concentrate in dental pediatrics, THE CHILDREN'S MEDICAL CENTER offers one year of postgraduate work. A year of such service is equal to one academic year in preparation for the American Board of Pedodontics. The graduate student works in the Dental Clinic and has the advantage of the associated hospital experience. The MEDICAL CENTER plans to appoint a resident, when available, who will carry on research and teach on a part-time basis in addition to performing regular clinical duties.

A young POLIO PATIENT *learns to walk.*



Waiting for appointments in the OUT-PATIENT DEPARTMENT.

Postgraduate Study for Pediatricians

Postgraduate study at THE CHILDREN'S MEDICAL CENTER, until recent years a minor off-shoot of the more highly developed undergraduate and resident programs, today is the most rapidly growing section of the entire program of education. For many years doctors interested in the latest developments in pediatrics have paid informal visits to THE CHILDREN'S HOSPITAL. While this policy continues even today, a more organized method of postgraduate study was introduced in 1945 when the Harvard Medical School initiated a program of "brush-up" courses for pediatricians who had served in the Armed Forces. These courses, first given as part of a longer program for veterans, were continued at THE CHILDREN'S MEDICAL CENTER under the auspices of Harvard after the longer course was discontinued.

The plan envisages five general methods: first, the affiliated residencies, which have already been touched upon; second, a program of extramural postgraduate teaching; third, an opportunity for visits to the MEDICAL CENTER by selected practitioners; fourth, a news bulletin; and fifth, use of modern means of communication—television, radio, and microfilm. At present, this program of medical education extends only to New England and upper New York, with Texas as a notable exception, but its effects are felt throughout the United States and abroad, since men in training come from all over the world and scatter throughout this country and abroad after leaving THE CHILDREN'S MEDICAL CENTER.

Twice a year for four-month periods pediatricians are enrolled for conferences, seminars, and informal talks on every aspect of THE CHILDREN'S MEDICAL CENTER program. They are invited to participate actively in the CENTER'S work and to review actual techniques of diagnosis and treatment. Postgraduate students derive a great deal of benefit from ward rounds and demonstrations, and the staff of the CENTER is kept constantly aware of the practicing physician's problems. For those pediatricians who are interested in a specific field a three-to-six months program has been worked out enabling them to concentrate in their chosen field of interest.

Wednesday LECTURE *for hospital staff and visitors.*

A SOCIAL WORKER *visits a child in a foster home.*

Extra-mural Training for General Practitioners

THE CHILDREN'S MEDICAL CENTER staff also recognizes that the busy general practitioner is seldom able to take time out for extensive study at a teaching institution. In answer to this problem, the CENTER is developing a program of extra-mural training designed to bring the medical knowledge of the CENTER to general practitioners. All branches of medicine relating to the care of patients in general pediatric practice are made available by two methods: first, a series of six-to-eight weekly or monthly informal talks with discussion given in a selected locality; second, an afternoon presentation of patients by local physicians for discussion of differential diagnosis and treatment. The latter is followed in the evening by a round-table, informal consideration of local problems or lectures on subjects of the practitioner's own choosing. This extra-mural program has met with marked success in New England and may eventually serve as a model for similar programs throughout the country.

Currently the postgraduate program at THE CHILDREN'S MEDICAL CENTER has aroused such interest that the Medical Advisory Board of the American Legion, interested in promoting the improvement of child health on a national and regional basis, is planning a grant to the CENTER to help further the significant educational work it is doing.

Courses in Polio Treatment

The Orthopedic Service has, for many years, been providing instructional courses in the treatment of poliomyelitis for graduate students and graduates of the Harvard Medical School. These courses are given in conjunction with the National Foundation for Infantile Paralysis. Similar courses are presented for nurses and physical therapists attracting a wide range of students from many parts of the United States.

Physical Therapy Program

The training of physical therapists is one of the important teaching activities of the orthopedic service at the CENTER. Physical therapy has become increasingly important in recent years when medical advances in the treatment of infantile paralysis have resulted in the more frequent application of therapeutic techniques in restoring the patient to maximum usefulness. The Massachusetts Infantile Paralysis Clinic at THE CHILDREN'S MEDICAL CENTER has been a pioneer in the development of new techniques and equipment for the care and rehabilitation of polio patients and as such provides an excellent location for the clinical instruction of physical therapists.

The Department of Physical Therapy at the CENTER experienced its greatest growth under the direction of the late Miss Janet Merrill, world

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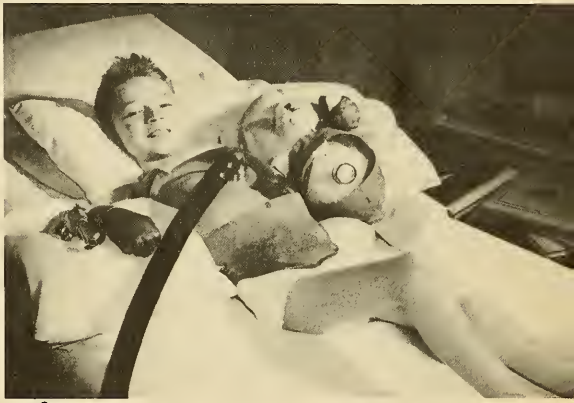

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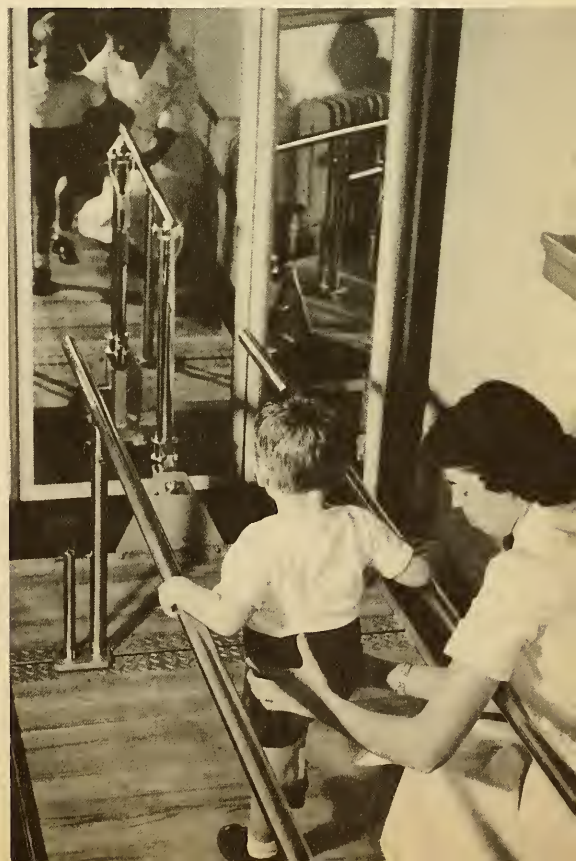


1 Physical therapists *work with children in weekly clinics.*

2 Pool exercises *are important to polio patients.*

3 A chest respirator *temporarily replaces an iron lung for this cheerful lad.*

4 *A young* polio *victim learns to walk again with the aid of a mirror.*

famous in the field. In cooperation with Simmons College, a program in physical therapy leading to a Bachelor of Science degree and certification in physical therapy has been developed. Associated with the CENTER and with Simmons in this program are the Departments of Physical Therapy of the Massachusetts General Hospital and the Peter Bent Brigham Hospital. The Simmons program is of sixteen-months duration and may be taken either by college graduates or by Simmons undergraduates who are working for the degree of Bachelor of Science. In the latter case, students complete three years of undergraduate training in the School of Science followed by the sixteen-months course. Upon completion of their physical therapy training they are then eligible both for a Bachelor of Science degree and a diploma in physical therapy.

Most of the lectures in the Department of Physical Therapy are provided by members of the CENTER'S staff. In addition to Simmons students, instruction in polio treatment is also given to doctors, nurses, and physical therapists each year. Student nurses receive instruction in body mechanics and massage. In return, orientation to nursing is taught by School of Nursing instructors to physical therapists. Foreign students come to the CENTER for periods varying from one month to six months for formal teaching, clinic practice for polio, and physical therapy relative to pediatric orthopedics. Occasionally lectures and demonstrations are given by members of the staff of the Department of Physical Therapy to doctors at medical associations and societies. Medical students, patients and parents also benefit from the teaching program of the Department of Physical Therapy of which the CENTER'S Orthopedic Surgeon-in-Chief, Dr. William T. Green, is Medical Director.

Nursing Education

The School of Nursing of THE CHILDREN'S HOSPITAL was established in 1889, one of the early schools of nursing in this country. Even before the establishment of the School the by-laws of the Hospital had recognized the importance of preparing young women to become nurses and organized instruction had been given during the preceding twenty years. Today the School of Nursing, which still goes under the title adopted in 1907, offers a three-year program which is accredited by the National Nursing Accrediting Service. While the School gives a basic nursing course which enables its graduates to qualify as registered nurses both for adults and children, it always has placed special emphasis on the care of the child, and a large number of its graduates continue in the field of pediatric nursing.

In 1950 the student body numbered 136 with representatives from such states as California, Delaware, Florida, Ohio, South Carolina and New York, as well as a large majority from the New England states.

STUDENT NURSES *learn nursing techniques in classes where they themselves act as patients. Later they are allowed to observe on the wards before they begin the care of patients.*

As early as 1904 the School established an affiliation with Simmons College in order to provide instruction in the sciences fundamental in the preparation for nursing. This arrangement has continued up to the present day so that the students still attend Simmons College in the first semester of their course.

Students receive experience in the care of patients from birth to eighteen years of age in the many divisions of THE CHILDREN'S HOSPITAL and the INFANTS' HOSPITAL, the time spent with children totaling seventeen months in all. All THE CHILDREN'S HOSPITAL students receive one year of affiliation in adult nursing including obstetrical and psychiatric nursing. Throughout the course considerable emphasis is placed upon the physical, emotional and social needs of the child and his family.

One of the major responsibilities of The Children's Hospital School of Nursing is to provide instruction in pediatric nursing for undergraduate students in other schools of nursing. Thus the school offers a three-month course in pediatric nursing to students from seventeen hospital and three college schools in the Greater Boston area, in other sections of Massachusetts and even in Maine. Between four and five hundred affiliating students receive this instruction each year in the classrooms and clinical divisions of THE CHILDREN'S HOSPITAL and INFANTS' HOSPITAL.

Postgraduate Teaching for Nurses

The School of Nursing participates in the instruction in pediatric nursing of graduate nurses by cooperating with the Boston University School of Nursing in providing field experiences for the students of that institution. A similar arrangement exists in regard to the advanced work in orthopedic nursing for graduate nurses. The faculty of the School participates in the instruction of the physical therapy students from Simmons College by giving a course in orientation in nursing. Another service to graduate nurses is the supplementary course in the care of patients with poliomyelitis, which instruction is given by the members of THE CHILDREN'S MEDICAL CENTER staff. These courses have attracted graduate nurses from Alabama, Ohio, Pennsylvania, Maine, Connecticut, Massachusetts and New York.

In the days since World War II came to a close the School of Nursing has had many visitors from other countries and has planned individual programs for many nurses from abroad who sought further experience and instruction in the field of pediatric nursing.

There is everywhere evident increasing interest on the part of graduate nurses in the care of children and it can be assumed that the School of Nursing will continue to play an important role in furthering their education.

Medical Information and Education Service

Finally, in an effort to discharge its responsibility to the public in the field of medical education, THE CHILDREN'S MEDICAL CENTER is now developing a program to be called the Medical Information and Education Service. This service will be responsible for the maintenance of a reference library and for the preparation of printed material and audio-visual aids. It will furnish the press and other agencies with authoritative data on all phases of child health and also provide speakers from the hospital staff for meetings of lay people concerned with the health and welfare of children. Symposia for parents as well as for those leaders in the field of education and recreation who bear a large burden of responsibility for the care and education of the young are also being planned.

As an example of the activity in this field THE CHILDREN'S MEDICAL CENTER has recently issued an Accident Handbook which has received wide recognition. It is estimated that approximately twenty million people in the United States and abroad have read this Handbook which was compiled by members of the staff as a public service.

The

THE purpose of THE CHILDREN'S MEDICAL CENTER today — **total care of the young** — will be the aim of the future. In the years ahead THE CHILDREN'S MEDICAL CENTER will increase its staff, broaden its program of care, education and research, and continue building to provide necessary space and facilities. As they are worked out, solutions to present-day problems will be put into operation, and new spheres of medical activity will be inaugurated. It is the hope of the staff that further progress will be made in many areas including cancer, cerebral palsy, child health, dentistry, infectious disease, poliomyelitis, radiology and problems of the handicapped child and of the adolescent.

An Institute of Pediatric Research, which has already been formed, will be an important phase of future development. Here the techniques of biology, chemistry, and physics will be applied to the disciplines of immunology, experimental pathology, pharmacodynamics and physiology for the solution of mental and physical problems concerned with the normal and with the sick child and adolescent.

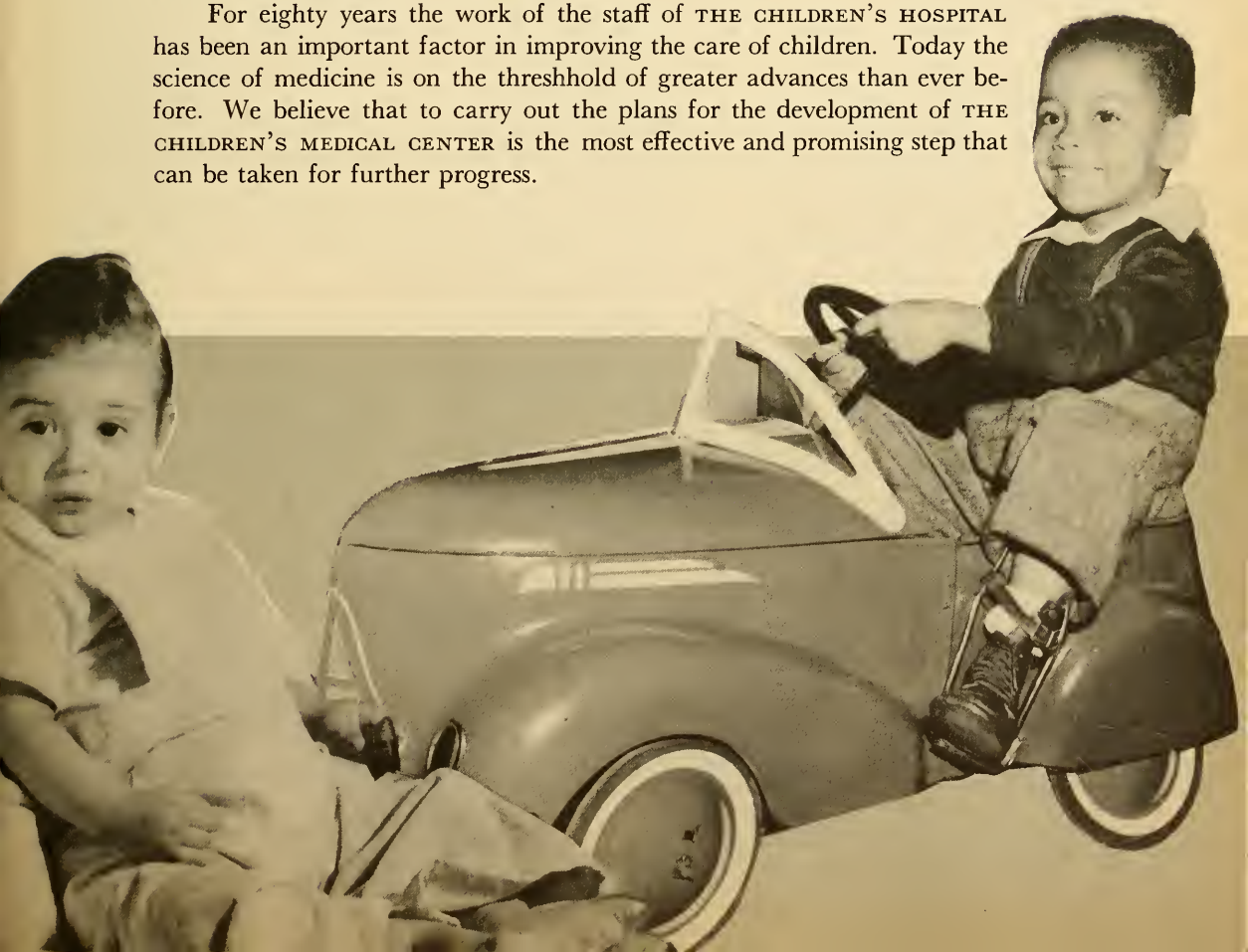
It is significant that the adolescent is playing an increasingly important part in the plans of THE CHILDREN'S MEDICAL CENTER. An Adolescent Unit has already been initiated in spite of limitations of space, funds and

Future

personnel. As now planned, the Adolescent Unit will be incorporated into the MEDICAL CENTER, making use of all the CENTER'S facilities but keying its care and treatment of patients to those who fall within the adolescent range. Special problems involving this final phase of the growth period will receive the study which they deserve. This will result in improved instruction for physicians and nurses as well as better care for patients.

THE CHILDREN'S MEDICAL CENTER is currently planning the construction of a new building which will have modern wards, operating rooms, laboratories, and out-patient facilities. New equipment will replace the old. Particularly the new CENTER will be planned with a view to the requirements of the team attack on disease. It is hoped that ground will be broken for the new building in the near future.

For eighty years the work of the staff of THE CHILDREN'S HOSPITAL has been an important factor in improving the care of children. Today the science of medicine is on the threshhold of greater advances than ever before. We believe that to carry out the plans for the development of THE CHILDREN'S MEDICAL CENTER is the most effective and promising step that can be taken for further progress.



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Allen M. Hill, M.D.
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Theodore H. Ingalls, M.D.
Jack Metcoff, M.D.
Dorothea May Moore, M.D.
Lawrence C. Kingsland, Jr., M.D. (in service)
Robert T. Moulton, M.D.
Harry L. Mueller, M.D.
Alexander S. Nadas, M.D.
Dane G. Prugh, M.D.
Frederick C. Robbins, M.D.
William Schmidt, M.D.
Abraham S. Small, M.D.
Lendon Snedeker, M.D.
William J. Turtle, M.D.
Sidney H. Weiner, M.D.
Thomas Weller, M.D.

Assistant Physicians

Tully Benaron, M.D. *(Psychiatry)*
Frederick Blumenthal, M.D.
T. Berry Brazelton, M.D.
John K. Brines, M.D.
James T. Cameron, M.D.
Albert Cohen, M.D.
Edward C. Dyer, M.D.
Benjamin G. Ferris, M.D.
Albert A. Frank, M.D.
Elizabeth A. Gregory, M.D.
Sprague W. Hazard, M.D.
William H. Horwitz, M.D.
John P. Hubbell, M.D.
Maurice Keller, M.D.
Marshall B. Kriedburg, M.D.
Alexander S. MacDonald, M.D.
Edward F. McGrath, M.D.
Donald E. McLean, M.D.
Lillian F. McMackin, M.D.
Lawrence S. Morse, M.D.
Rose C. Munro, M.D.
Alice Nauen, M.D.
Joseph Osborne, M.D.
Paul R. Patterson, M.D.
Mary E. Perry, M.D.
William Pfeffer, M.D.
Henry M. Putnam, M.D.
Kenneth F. Sands, M.D.
John W. G. Tuthill, M.D.
Jacob Wallace, M.D.
Henry M. Wermer, M.D. *(Psychiatry)*

Associate
Lydia Dawes, M.D. *(Psychiatry)*

Research Associate
I. H. Scheinberg, M.D.

Allergy Division

Lewis Webb Hill, M.D., *Allergist*

Cardiology Division

Benedict F. Massell, M.D., *Chief of Rheumatic Fever Division and Physician, Children's Mission to Children*
James W. Dow, M.D., *Director of the Circulation Laboratory*
Alexander S. Nadas, M.D., *Associate Cardiologist and Physician, Sharon Sanatorium*
Hyman Green, M.D., *Associate Cardiologist*

Child Health Division

Harold C. Stuart, M.D., *Chief*
Samuel Dooley, M.D., *Associate*

Hematology Division

Louis K. Diamond, M.D., *Hematologist and Director of the Blood Bank*
George W. Dana, M.D., *Assistant Director of the Blood Bank*
Fred H. Allen, M.D., *Associate Hematologist*

Metabolism Division

James L. Gamble, M.D., *Chief*
William McL. Wallace, M.D., *Associate*

Neurology Division

Bronson Crothers, M.D., *Chief*
Randolph K. Byers, M.D., *Associate Neurologist*
William G. Lennox, M.D., *Chief of Seizure Unit*
Douglas T. Davidson, M.D., *Associate*
Dane G. Prugh, M.D., *Physician to the Brenton Unit (Psychiatry)*
Edith Meyer, Ph.D., *Psychologist*

Heads of General Clinical Services

R. Cannon Eley, M.D., *Isolation Service*
Frederick C. Robbins, M.D., *Isolation Service Associate*
John A. V. Davies, M.D., *Private Medical Service*
Henry E. Gallup, M.D., *Hospital and Convalescent Home at Wellesley*
John W. G. Tuthill, M.D., *Medical Out-Patient Department*
Randolph K. Byers, M.D., *Children's Medical Service*
Clement A. Smith, M.D., *Infants' Medical Service*
Stewart H. Clifford, M.D., *Premature Service*

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Robert E. Gross, m.d., *Surgeon-in-Chief*

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Surgeons

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Associate Surgeons

Thomas W. Botsford, m.d. — Chilton Crane, m.d. — Henry W. Hudson, Jr., m.d.

Assistant Surgeons

Paul F. Ware, m.d. — John W. Chamberlain, m.d.

SPECIAL SURGICAL DIVISIONS

Otolaryngological Division

Carlyle G. Flake, m.d., *Chief Otolaryngologist*
Charles F. Ferguson, m.d., *Associate Otolaryngologist*
Charles I. Johnson, m.d., *Assistant Otolaryngologist*
Lyman G. Richards, m.d., *Assistant Otolaryngologist*
Harold G. Tobey, m.d., *Assistant Otolaryngologist*
John Trakas, m.d., *Assistant Otolaryngologist*
Donald J. Weekes, m.d., *Assistant Otolaryngologist*

Ophthalmological Division

Trygve Gundersen, m.d., *Chief Ophthalmologist*
S. Forrest Martin, m.d., *Associate Ophthalmologist*
Garrett L. Sullivan, m.d., *Associate Ophthalmologist*
Joseph M. Clough, m.d., *Assistant Ophthalmologist*
Sumner D. Liebman, m.d., *Assistant Ophthalmologist*
Earl S. Seale, m.d., *Assistant Ophthalmologist*

Anesthesia Division

Robert M. Smith, m.d., *Anesthesiologist*

DEPARTMENT OF ORTHOPEDIC SURGERY

William T. Green, m.d., *Orthopedic Surgeon-in-Chief*

Orthopedic Surgeons

Albert H. Brewster, m.d.
David S. Grice, m.d.
Robert H. Morris, m.d.

Associate Orthopedic Surgeons

William A. Elliston, m.d.
Paul W. Hugenberger, m.d.
Meier G. Karp, m.d.

Assistant Orthopedic Surgeons

Jonathan Cohen, m.d.
John G. Kuhns, m.d.
Charles L. Sturdevant, m.d.
G. Wilbur Westin, m.d.

DEPARTMENT OF RADIOLOGY

E. B. D. Neuhauser, m.d., *Radiologist-in-Chief*
Martin Wittenborg, m.d., *Associate Radiologist*

DEPARTMENT OF NEUROSURGERY

Franc D. Ingraham, m.d., *Neurosurgeon-in-Chief*
Donald D. Matson, m.d., *Associate Neurosurgeon*
Edgar A. Bering, Jr., m.d., *Assistant Neurosurgeon*

DEPARTMENT OF PATHOLOGY AND CHILDREN'S CANCER RESEARCH FOUNDATION

Sidney Farber, m.d., *Pathologist-in-Chief and Chairman*
Division of Laboratories and Research

Orville T. Bailey, m.d., *Neuropathologist* — Israel Diamond, m.d., *Associate Pathologist*

Assistant Pathologists

Jonathan Cohen, m.d. *(Orthopedic)* — Betty Ben Geren, m.d. — Benjamin Landing, m.d.
John Craig, m.d. — William Jaques, m.d. — Oscar Rambo, m.d.

Research Associates

Elkan Blout, ph.d. — Virginia Downing, m.d. — Lawrence Kingsland, m.d. (in service)
David L. Coffin, v.m.d. — George Foley, b.s. — Maurice Pechet, m.d.
J. LeRoy Conel, ph.d. — Lutfu Lahut Uzman, m.d.

Research Assistants

T. C. G. King — Philip Levine, ph.d. — Edward J. Modest, ph.d.

Laboratory of Clinical Pathology

Harry Shwachman, m.d., *Chief*
Paul Patterson, m.d., *Associate*

Research Division of Infectious Disease

John Enders, ph.d., *Chief*
Thomas Weller, m.d., *Assistant Chief*
Frederick Robbins, m.d., *Associate*

Research Division of Nutrition

S. Burt Wolbach, m.d., *Chief*
Charlotte Maddock, m.d., *Associate*

DEPARTMENT OF DENTISTRY

Paul K. Losch, d.d.s., *Dentist-in-Chief*

Paul K. Losch, d.d.s., *Stomatologist*
David Weisberger, m.d., d.m.d., *Associate Stomatologist*
Harry Bailey, d.m.d., *Assistant Stomatologist*
Charles Campelia, d.m.d., *Assistant Stomatologist*
Paul Gilpatric, d.m.d., *Assistant Stomatologist*
Abraham Kaner, d.m.d., *Assistant Stomatologist*
Bruce McAllister, d.d.s., *Assistant Stomatologist*

Melvin I. Cohen, d.m.d., *Associate Orthodontist*
Edward I. Silver, d.m.d., *Associate Orthodontist*
Lennard Swanson, d.m.d., *Associate Orthodontist*
Charles M. Waldo, d.d.s., *Associate Orthodontist*
Henry C. Beebe, d.d.s., *Assistant Orthodontist*
Emory Farrington, d.m.d., *Assistant Orthodontist*
Abijah Pierce, d.m.d., *Assistant Orthodontist*

Maurice Dinnerman, d.m.d., *Associate Oral Pathologist*